

THE BRAIN
AND THE NERVES
—
STRETCH DOWSE

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THE
BRAIN AND THE NERVES.

THE BRAIN AND THE NERVES :

THEIR AILMENTS AND THEIR EXHAUSTION.

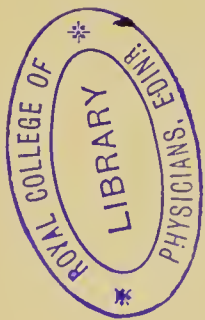
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TO THE NORTH-WEST LONDON HOSPITAL; AND PHYSICIAN SUPERINTENDENT
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"Whatever crazy fashion saith,
No life that breathes with human breath
Has ever truly long'd for death.

"'Tis life, whereof our nerves are scant,
Oh life, not death, for which we pant;
More life, and fuller, that I want."



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TO
WILLIAM ADAMS, Esq., F.R.C.S.,
THE GREATEST OF ORTHOPÆDIC SURGEONS,
THIS LITTLE BOOK IS DEDICATED,
WITH THE
HIGHEST SENTIMENTS OF ESTEEM, RESPECT, AND REGARD,
BY ONE WHO IS GRATEFULLY MINDFUL OF
MANY ACTS OF FRIENDLY SERVICE.
THOMAS STRETCH DOWSE.

PREFACE.

FOUR years ago I read a paper before the Fellows of the Medical Society of London, on "Nervous Exhaustion." This paper was printed in book form at the request of some of the Fellows, who thought the subject was one of increasing interest and importance. The edition had a rapid sale in this country and in America, and was soon exhausted. During the past two years, since it has been out of print, many inquiries have been made for it, and for this reason I have reviewed the whole question of "Nervous exhaustion" in its present form. I am fully aware that I have not done that amount of justice to the subject which it really deserves—not from lack of interest or knowledge, but because my time has been so fully occupied in the busy everyday work of my profession.

I hope, however, to give to this most important and neglected branch of medical literature even more careful thought and reflection than I have hitherto done, as every day I am more and more convinced that the *fons et origo mali* is to be found by studying more carefully the various forms of exhaustion of the brain and nervous system.

14, WELBECK STREET,
CAVENDISH SQUARE, LONDON.



CONTENTS.



	PAGE
INTRODUCTION ...	I
CHAPTER I.	
OF A FEW THINGS WHICH WE DO KNOW, AND OF FACTS WHICH HAVE BEEN ESTABLISHED, IN CONNECTION WITH THE PHYSIOLOGY AND PATHOLOGY OF THE NERVOUS SYSTEM, UP TO THE PRESENT TIME ...	7
CHAPTER II.	
NERVOUS ENERGY AND EXHAUSTION ...	14
CHAPTER III.	
SOME OF THE ORDINARY SYMPTOMS OF "THE NEURASTHENIC" ...	21
CHAPTER IV.	
ON SPECIAL FORMS OF MENTAL DERANGEMENT AND BODILY AIL- MENTS DUE TO NERVOUS EXHAUSTION ...	28
CHAPTER V.	
THE HEREDITY OF NERVOUS CONSTITUTIONS WHICH ARE ESPECIALLY LIABLE TO EXHAUSTION AND FATIGUE ...	79
CHAPTER VI.	
THE TREATMENT OF NERVOUS EXHAUSTION ...	101
INDEX ...	133



MEMORY
IMAGINATION
RESISTING POWER

ASTRAPHOBIA
TOPOPHOBIA
ANTHROPOPHOBIA
MONOPHOBIA
PATHOPHOBIA
PANTAPHOBIA

FEAR OF LIGHTNING
" PLACES
" MAN & SOCIETY
" BEING ALONE
" DISEASE
" EVERYTHING

ISNESS
FEARS
APPLICATION
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APRECIATION

DEFECTIVE REFLEXES

HYSTERIA

CHOREA

ENCY

STIPATION

SPINAL IRRITATION

CONVULSIONS

SPASMODIC STRICTURES

WASTING

SQUINT

PALSY

SPASMS

TREMBLINGS

CHINGS

CRAMPS

PARALYSIS

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INTRODUCTION.

Is it true that the study of neurasthenia has been neglected from a professional point of view ?

The question is put by way of introduction for this reason, that, judging from the experience of a quarter of a century, in my opinion the study of neurasthenia has been almost entirely and completely ignored. This is not creditable to the medical literature of this country, and it is a blot upon the escutcheon of medical science. I never can endorse the opinion that has been expressed to me very many times by medical men—"that harm is done by bringing before the patient's view the signs, symptoms, and associations of nervous exhaustion ;" that they often, by this means, become chronic invalids, morbid hypochondriacs, and such like ; "that it is better to make light of their maladies, to ridicule their fancies, to send them for a sea voyage, and, in fact, to do anything rather than draw their attention to themselves by any rational and systematic course of treatment." On the contrary, I believe that the worst enemy of the emotions is the intellect, and by getting a patient intellectually interested in his own case, by assisting him to know and face the enemy, we can put him in a position to understand that his troubles (serious as they may be) are not so serious as he had feared.

It is perfectly true that in neurasthenia the symptoms are almost entirely of a *subjective* character ; and to one

who has never suffered from them they not only appear trifling and unreal, but really almost incredible.

The practitioner of medicine is now so far educated that he has little difficulty in diagnosing disease of the heart, of the lungs, of the liver, or of the kidneys, with an absolute degree of certainty. But I would ask, In what way does this knowledge avail the patient when he is doomed by disease to die? We must learn to diagnose organic changes before they have made progress, before the seeds of destruction have taken root and fructified. The glorious future for medicine (and in this true science will very materially aid us) is to learn to anticipate disease, to ferret out its latent seat, and to place a man in such a constitutional condition that he can *resist* the action of those disturbing elements which engender his destruction.

Happily for the world at large, public opinion—that never-failing organ of truth and common sense—is just beginning to realize that medical science, although it has advanced in pretty much the same ratio as other sciences, is still unable to touch a certain class of sufferers whose life is one constant state of ailment, and who would give almost all they are possessed of to enjoy even a portion of that immunity from disease which, it is to be hoped, is the common lot of the majority of mankind. Such sufferers as these are *neurasthenics*. In plain words, their nervous systems are so enfeebled, so irritable, and so unstable, that they are utterly incapable of resisting the surrounding influences (atmospheric and otherwise), which are appreciable by them in so many ways, but which pass unheeded by the healthy and the robust.

The fact that the usually recognized forms of nervous disease, such as the various kinds of insanity of a marked type and diseases of the spinal cord, are greatly on the increase in this country, must ere long receive much more serious attention than it has hitherto done from the medical profession. The question is naturally asked, To what is

this increase due? And the answer will generally be: It is due to the advance of civilization; to the wear and tear, worry and anxiety of modern life; to the custom of working at high pressure; to over-training; to over-educating, over-eating and drinking, excessive railway travelling, and the like. All this is perfectly true. There is nothing in nature which can perform more than a given amount of work in a given time, and it is just as senseless to attempt to put a quart into a pint measure, as it is to expect a man's brain to do more than a given amount of work without injury. Yet the healthy human brain is capable of doing much more work than it generally does do. There are few brains that are worked to their utmost, and I maintain that insanity and other forms of nervous disease and nervous exhaustion are rarely, if ever, produced by regular and sustained labour, where the supply of force and power is equal to the demand. But—and here comes the rub—a brain which is working at high pressure has, most unquestionably, less power of resistance than a brain working at low pressure. It is more sensitive and more liable to be thrown off its balance by the least disturbing agency. Then arises that monster, that element of confusion—*Worry*. It is a true saying, "Worry kills." It acts like a grain of dust does upon the works of a watch, in first destroying their regular and rhythmical action, then finally suspending their movements altogether.

The late Dr. Beard, who knew more of neurasthenics than any man of his day (and I should say for the reason that he himself was neurasthenic), puts the following question, "Why is it that this important field of science has been so little studied?" His answer is—I give it only in part—"Firstly, it is the tendency of the partially educated mind everywhere to reject or doubt what cannot be confirmed by the eyes or ears, forgetting that the five senses of man are so meagre that they practically shut him out from nature; forgetting that the great natural forces, as light, heat, electricity, magnetism, gravity, are quite beyond

the reach of any one of the senses, or all of them combined. Scientific men have allowed themselves to ignore and despise some of the most remarkable, interesting, and instructive phenomena of the nervous system, both in health and disease, for the only reason that they cannot be seen and heard and felt."

Secondly, "the cause of the neglect of this disease is that a successful study of it requires an exercise of the reasoning as well as of the observing powers. To one accurate and original reasoner there can be found a thousand original and accurate observers—men who can see and hear and feel without being able to go behind the phenomena that strike their senses, and explore through dark and devious pathways the domain of general law.

"In medicine, especially in the study of the nervous system, deductive as well as inductive reasoning is needed. In order to study neurasthenia and allied diseases, such as inebriety, hysteria, or hay fever, it is needful not only to carefully observe the phenomena, but to observe large numbers of them simultaneously, and to study them in their relations to each other and to other facts of nature, and to do all this with faculties so well disciplined and trained, that there shall be no over-estimate of the relative importance of special facts, and no overlooking of any phenomena however trifling."

These are Dr. Beard's views, and they are no less philosophical than they are sound, practical, and just.

I would ask another question—What has the science of pathology and practical physiology done for the art of medicine as applied to the treatment of nervous exhaustion from the healing and curative point of view? Alas! the answer must be—Nothing. Science teaches us the varieties of cancer, and how they may be distinguished from other tumours: has it taught us the way to cure cancer? No. Science has struggled hard to discover the precise nature of tubercle: has it taught us the way to

cure consumption? No. Science has taught us much concerning diabetes, of the cause and nature of which we know really nothing: will scientific treatment cure it? No; but it will shorten the life of the patient. Surgical science went mad some few years ago concerning antiseptic surgery. The surgeon's knife was to be wielded with impunity, and surgery was to become an exact science. Now, what is the general opinion of antiseptic surgery *versus* scrupulous care and cleanliness? Science, some twenty years ago, would have us believe that syphilis was to be treated without mercury, with the result that patients and their offspring were doomed to perpetual disease in consequence. Let it be remembered that I have no wish to run counter to scientific discoveries concerning healthy and diseased states, but the longer one lives and the more extensive one's experience becomes, the more does one feel convinced that there exists at the present day a vast amount of disease of purely nervous origin over which the *ordinary* forms of treatment exercise absolutely no curative influence whatever.

Therefore I say that the study of neurasthenia has been and is a neglected study. The teaching of late years has been so materialistic—or perhaps it would be more acceptable to say, so scientific—that when the unfortunate neurasthenic has been examined with the tuning fork, the ophthalmoscope, the stethoscope, the reflexometer, the dynamometer, and his blood and urine have been subjected to a critical microscopic and chemical examination, *and nothing has been found wanting*, then *nothing can be wrong*, and the unfortunate patient's subjective symptoms are relegated to the sphere of his own morbid imagination. His nerves may be a little overstrung, or they may be a little understrung, but scientific orthodoxy says, "In the name of scientific truths, go hence, friend; rest thyself, care nought for the morrow, let the past rest, have faith in what science teaches, and thou shalt be whole. Science declares

you have nothing the matter with you." The sequel need not be added, but I would ask, What, in the name of common sense, does this science mean? How, indeed, must true science laugh at and put to scorn the feeble attempts of man to unravel the mysteries of nature. It is the truly scientific man who confesses his own ignorance. It is the bastard scientist who wishes to impress mankind with one idea — that he is omniscient; that all men are fools but himself; but I repeat with unbounded pleasure and satisfaction the following paragraph from Dr. Beard's book :—

"Physicians who pass by the obscure phenomena of the nervous system as unworthy of their notice, may be reminded of this, that modern science in all its branches, and particularly in biology, is constructed out of slight, trifling, and unnoticeable facts and phenomena of nature."

CHAPTER I.

Of a Few Things which we do know, and of Facts which have been established, in connection with the Physiology and Pathology of the Nervous System, up to the Present Time.

I CAN only refer to these points briefly, but some reference to them appears to be necessary in order to verify our knowledge of the subject. In the able and impartial lectures of Dr. Mc Kendrick, delivered at the Royal Institution, during the past session, we have been made conversant with the names of those distinguished discoverers who have led us step by step from darkness into light,—“from the unexplored regions of the unknown, to those mysterious realms of which, even now, we know comparatively nothing, where the living forces of all our mental activities are silently elaborated, and where the solution of those eternal problems regarding the relations of the physical organization of the living being to the acts of its psychic and intellectual life, evades us as we pursue it” (Luys). We are undoubtedly more indebted to Marshall Hall, and to Johannes Müller, than to any other men, either of the past or of the present, for the great discovery of *reflex nervous action*. No one knows what great discoveries lie hidden in the future, but the greatest and most comprehensive question for solution is that of reflex nervous action. We have yet to learn by subjective clinical signs and symptoms, by careful histological, pathological, and physiological observation (far more than by the rude practices of vivisection),

the at present vague relation between the physical and the metaphysical, the volitional and the automatic, the sensorial and the motorial. I am quite willing to be the first to recognize the great work which has hitherto been done in the anatomical and physiological division of certain motor and sensorial areas and centres in the cerebro-spinal and sympathetic systems, and it is by this knowledge that physicians are daily being compelled to recognize the all-important part exercised by the nervous system in the production of many deadly and obscure forms of disease. In the development of man, the protoplasmic cell from which he originates forms a germinal membrane, which is called the "blastoderm," and which is subdivided into three layers—the "epiblast," "mesoblast," and "hypoblast." From the "hypoblast" the general lining membrane of the internal parts of the body is formed, such as the digestive system. From the middle layer, or "mesoblast," originate the tissues and organs of the body generally, *excepting the brain and outer skin of the body, which are formed from one and the same body—the "epiblast."*

"It is a fact both startling and marvellous that the great nerve centres of man and the higher animals are formed from the same layer of the young being which gives origin to the skin or outer layer of the body." In other words, our nervous centres are formed from an infolded portion of what, in the early condition, was the outer layer of our frame. This infolded part ultimately obtains, through the development of connecting nerves, a communication with the outer world, and thus comes, as the nervous system, to regulate and control the entire organization. But the process of formation of the nervous system from an infolded layer of the outer surface of the body is equally clearly seen in the development of the eye, the ear, or the nose—those specialized parts of the nervous system through which we obtain a defined knowledge of the world around us. These, then, the most important of our sensory

organs, are developed from the outermost tissues of the young animal, and are placed thereafter in connection with the brain, which itself, as we have seen, was developed from the same outward layer, so distinctly to be discerned in the earliest stages of life. What, then, are the inferences concerning the origin of nerves, which may be reasonably drawn from the story which development not merely tells, but substantiates by the plainest of evidence?

Simply that our nervous centres and sense organs, by means of which we not merely feel, see, and hear, but through which we exercise the highest powers of will, reason, and intelligence, are formed from a layer which originally, and in antecedent states of existence, met the rough and direct contact of the outer world (Wilson).

Can we wonder (with this knowledge before us) at our susceptibility to external influences, and to barometric changes, which bring about through nervous agency certain conditions and obscure forms of disease?

The *nervous system* pervades every part of the body, and it is to man what the solar system is to the earth. It engenders, distributes, and regulates *force*. *The engendering and transmission of nerve force is the especial office of masses of grey and nervous matter, called central ganglia. The conduction of nerve force is performed by nerves.* The grey matter is made up of cells which are massed together, forming ganglia or centres, and just as in telegraphy, these ganglia form so many telegraph centres or stations. The nerves, on the other hand, are like the coils of telegraph wires, conducting the messages which are formulated in and by the ganglia. These masses of grey matter have a special function and language of their own; they are constantly communicating with each other, and transmitting messages in ceaseless and rhythmical order, and in the strictest secrecy. Hence the terms *automatic* and *involuntary* are applied to these processes of communication, and they have especially to do with what we may

truly call the *innate ganglionic sub-consciousness of man*. It is by these processes that respiration is carried on ; that the heart moves in ceaseless action ; that the blood is always kept in circulation ; that the stomach, kidneys, liver, and skin perform the various functions of digestion, secretion, and elimination, in a manner concerning which the healthy man is utterly unconscious. It is disease, as we shall see, which makes man conscious of his unconsciousness. The commonest example of this is *pain*. Man is by nature much more automatic in every-day life than is generally supposed. Genius is the highest development of automatism plus psycho-intellectual activity.

The nervous system is usually divided into two parts, and named the *cerebro-spinal* and the *sympathetic*. The *cerebro-spinal nervous system* is subdivided into three parts, named the *cerebrum* or big brain, the *cerebellum* or little brain, and the *spinal cord*. These three divisions may be subdivided *ad infinitum*. Each principal division, however, is closely and intimately connected with the other by direct broad channels ; but all are connected in thousands of ways, of which, at the present time, science is wholly ignorant. This department of the human organism is characterized by the power which it possesses of evolving certain well-known phenomena ; and chief amongst these are the phenomena of *motion* and *sensation*, and the phenomena of *intellectual* or *mental* life, and they cannot be disassociated without impairing the great and *elaborate totality*. Man may have his brain diseased, he may have certain of his *higher* centres destroyed, and still he may live by the purely automatic action of the lower centres. But he lives the life of a brute ; he vegetates. Man has his spinal cord diseased (lower centres) ; the brain retains for a time intellectual activity, but the grand totality is destroyed, and finally general disintegration is the result. *Ascending* and *descending* molecular disintegration—that is to say, degeneration from the *higher* to the *lower* centres,

and from the *lower* to the *higher* centres—are well-known pathological phenomena. Man lives, moves, and has his being through the medium of the multitude of *reflex actions* of which his nervous system is capable. Each *receptive cell* or *sensory* element of the grey matter of his brain is always ready to respond to the never-ending interrogations to which it is subject. It stands like a loaded gun, fully charged and primed, to expend its *force* in the given direction required of it; and the *force* so expended is called the *centrifugal* force. The channels for the expenditure of this *force* are the *motor* nerves; the channels conveying the fuze to the gun, or the impression to the *receptive cell* or *sensory* element, are called *centripetal*, and the force conveyed through them is called the *centripetal* force. This is very commonplace language, but it shows fundamental truths, and every function of man's body is worked by this species of machinery which is absolutely the phenomenon of life; and, in spite of its complexity, it is regulated by laws and formulated upon principles which science may yet reveal, but which, as yet, are known only to the great *Architect* of the *universe*. What I wish to maintain, and what I shall substantiate, is this :—

That man is the highest type of the combination and correlation of all known and unknown forces.

That we call this force nervous or vital force.

That one man is superior to another man (it may be intellectually, or physically, or both) by the development, organization, and the adjustment of vital force.

That health is the resultant.

That disease and death are the natural outcome of defect in the due formation and elaboration of this force.

That nervous exhaustion is the forerunner and prime agent in the production of all diseases, functional and organic.

That each nerve-cell or recipient element is united with its fellow, and ever ready, when called upon, to perform a certain

amount of work, and when not called into action it is silently storing up energy and force.

Excitement may arise in a nerve-cell independently, i.e. without any visible external irritant.

Nerve-cells can transfer the excitement from one fibre to another.

They can receive an excitement transmitted to them, and transmit it into conscious sensation.

They are able to cause the suppression of an existing excitement.

All movements which occur independently of the will are called automatic.

All movements which are subject to the power of the will are called voluntary.

Automatic movements, which are inappreciable in health, produce subjective sensations in disease and nervous exhaustion.

Movements which in health can only be engendered by voluntary effort are engendered automatically and inordinately in states of disease and nervous exhaustion.

We know that nerve-cells possess an irritability which is perfectly *normal*, and we have observed that they transmit the excitement which arises in them and transfer it in a given direction.

We know that *nerve-cells* under various and varying forms of *exhaustion* possess an irritability and an instability which is *abnormal*. That nerve-cells under such conditions lose their normal molecular and their normal tensile vibratory action. Thus nerve force is transmitted, not rhythmically, but spasmodically and jerkily, or it may cease to be engendered altogether. The nerve-cell, in fact, loses its inherent capacity and its normal power of resistance.

It is under such conditions that epilepsy is produced; that cholera and fevers kill; that a strong mind is brought under the control and influence of one which possesses in a higher degree *will individuality*.

What, then, are the individual characteristics of a healthy nerve-cell? They are as follows :—

1. *To create nerve force, energy, power.*
2. *To store up nerve force, energy, power.*
3. *To maintain its own capacity for the reception of impressions.*
4. *To impart nerve force, energy, power in definite quantity and quality.*
5. *To correlate its own special function with that of its neighbours.*
6. *To resist impressions with which it has no natural connection.*
7. *To insure its own nutrition.*
8. *To maintain a normal state of tension.*
9. *To adapt itself to its environment.*

CHAPTER II.

Nervous Energy and Exhaustion.

BY the exhaustion of a nerve or of a nervous centre, or by the exhaustion of the brain or of the spinal cord, or by the exhaustion of the whole nervous system, we refer to what must be understood as a diseased condition, although it is, in the strict sense of the word, merely an arrest of function and something more, the precise nature of which *something more*, however, it is oftentimes a difficult matter to determine.

Healthful sleep is due to nervous exhaustion, consequent upon an arrest of function in the hemisphere of the brain ; and during this temporary arrest of function, the trophic or nutritive elements are still actively employed, and the brain-cells are being recharged with nutritive pabulum in the form of bioplasm.

The arrest of function alone would not restore energy to an exhausted nervous centre, and, if nutrition were not going on during sleep, the person would not wake up invigorated and refreshed.

In the cases of exhaustion of the brain, caused by excessive pain, which we find associated, for instance, with cancer, or in the exhaustion of the brain which we find frequently accompanies persons suffering from consumption, we see our patients completely exhausted from want of sleep, which is also due to arrest of function in the hemispheres of the brain.

Function in these instances, however, is not only not perfectly carried out, but the laws of nutrition are so inactive that the very effort at repair of the exhausted brain-cells produces an irritability of function incompatible either with rest or with repair of the exhausted state.

A nervous centre is often said to be exhausted when in reality such is not the case. It may be dormant and inhibited. Its power may be merely held in check by the most common reflex influence. Remove this influence—that is to say, reduce the over-tensile state of the nervous centre, or it may be of one or more cells—then freedom of action is re-established, and liberty is regained. The suppressed action of certain cerebral centres leads to melancholia, and this condition may in the same individual be changed to one of acute mania by withdrawing the inhibitory influence too readily.

In my wards for consumption at the Central London Sick Asylum, at Highgate, I used frequently to observe to the nurse that such a patient was suffering, or apparently suffering, more from an exhausted brain, than from disease of the lungs, and the signs of that condition are well known. The eye will be bright, the countenance distrustful and anxious, the temper irritable, delusions and hallucinations not uncommon, and in some cases even self-control will be lost, insomuch that the patient may become violent. If questioned as to his health, he will say that he is quite well, and wants to get up and go for a walk, although, in fact, he is scarcely able to move. Yet see how rapidly the whole being of this patient becomes changed if we but treat him in such a way as to effect a complete arrest of function in his cerebral centres. Let him take half a drachm of the hydrate of chloral,* and note the effect; if it induce sleep, we shall find that when he awakes he is a different creature. The brain-cells have been at rest, and they have been

* The late Dr. Anstie proved that chloral excited a toning influence on the arterial web.

endowed with normal potential energy ; they have become changed from a condition of irritability and instability to a state of normal molecular activity. He still feels his weakness and incapacity, but the brain is the least exhausted part of his body.

Now let us, please, just consider what is meant by this arrest of function, this molecular inertia, which gives rise to exhaustion in the nerve-cell and the nervous centre. Physicists tell us that, in the inorganic world, matter and energy are indissolubly associated ; that we know of matter only through the transformation of energy, and that we recognize energy only through its affections of matter. But the especial properties possessed by matter will depend upon the circumstances under which such matter is placed. We know that gold, which is usually opaque, may be made sufficiently thin to be transparent ; that iron may be rendered soft and plastic by heat. These changes are called molecular changes, and may perhaps be better demonstrated by the volatilization of æther. Energy, as existing in a material form, may be illustrated by the following experiment. If we pass a strong electric current through water, the electric force or energy is used up in decomposing the molecules of water, and in dividing these molecules into their component molecules of hydrogen and oxygen. If these gases so evolved are collected and mixed, we may by heating the mixture recover the electric energy in the sound and heat of an explosion. 4

The physicists say that matter and energy are more or less strongly united according to their power of resistance, which power the chemist will designate as the forces of affinity and cohesion existing between the atoms and molecules of matter. Now, these varying conditions of matter can be proved to have a definite existence. We will follow this subject a little further, because my object is to lead to the consideration of the highest attributes of energy in the inorganic world, in order that it may be the more

readily comprehended how these automatic or mere dynamic changes are influenced by the existence of organized media.

In spectrum analysis it is seen that a free molecule has definite fundamental modes of vibration, which give definite wave-lengths of light, just as a tuning-fork gives musical vibrations of a definite pitch, and molecules of different kinds of matter have different periods of vibration, which are distinguished by their characteristic rays. We know that heat is the agent which, in the inorganic world, starts these vibrations and supports their existence.* The inertia of a body is, I conclude, in direct ratio with its resisting power. We pass on now, by way of comparison, to the organic world, and what do we find? We find there a building up of the same elements as in the inorganic world, and these are, in like manner, composed of ultimate atoms, or molecules; and these atoms are, in fact, as I have stated, nothing more nor less than a material form of energy, but in addition to this form of energy we have a power peculiar to itself, which is called a correlation of forces. This power we know as life or vitality. I shall perhaps explain my meaning more practically by calling your attention to the wonderful swimming exploits of the late Captain Webb, which indicate to my mind the immense conservative energy

* Maxwell, in his observations on the "Theory of Heat," says that the energy of a body may be defined as the capacity which it has of doing work, and is measured by the quantity of work which it can do ("Theory of Heat," by J. Clarke Maxwell, 1875, p. 90). I venture to think that we, as biologists and physicians, can, after a manner, account for exhaustion of nervous energy in very much the same way that the physicist explains the energy of an atom or molecule according to its power of resistance in relation to the medium which surrounds it. Dr. Ralph Richardson, in his exceedingly valuable and instructive work on "The Nature of Life" ("The Nature of Life," by Ralph Richardson, M.A., M.D., 1878, p. 13) says: "To speak of changes of energy or force, and that force shows itself in motion, is decidedly illogical and unscientific. A force, or power, can produce no effect, unless in co-operation with some matter having a susceptibility adapted to such force, and by its reaction giving to our minds the nature of force."

which his nervous system was capable of storing up, and also of expending in a rhythmical and automatic manner ; but this is not all, for Captain Webb had to thank his excellent physique and his well-organized and evenly balanced nervous system, which gave him the power, or energy, or capacity to resist fatigue in a manner quite unique.

I lay special stress upon this point of resistance, or as some may term it, the power of endurance. If all men were built after the manner of Captain Webb, we should hear very little of nervous exhaustion or epilepsy. The brain, and consequently every individual cell of which the brain is composed, is a factor as well as a nidus for the conservation of energy. *Molecular displacement in the nerve-cells means the exercise of disruptive energy, which leads to a failure in the power of resistance, a diminution of vitality, a lowering of tension, a decrease of tone, and an exhaustion of the nervous system ; in fact, an arrest of function and molecular inertia.**

The energy or force with which a nerve-cell is specially endowed may be said to consist of (1) the active, floating or automatic ; (2) the complementary ; and (3) the residual, or latent energy, just as in the lungs we have the tidal, the complementary, and the residual air. The one is, in a measure, as much a form of energy as the other, and there can be little doubt that most functional troubles of the nervous system are due to the want of an equable development of stable energy ; and this results from abnormal molecular interchange inducing defective correlative integrity of individual cells or groups of cells. How far this nervous energy or force is essentially the vital force, is a question of conjecture ; but whatever may be the precise nature of nervous energy, it is, I think, apparent that it governs and controls all other forces, whether these forces be formative or correlative, and that it is only by the united and harmonious action of these forces that health and even life

* It is a general principle in physics that energy in performing work is expended and finally exhausted.

itself are preserved. I may note here, that the late Dr. Bence Jones ("Lectures on Some of the Applications of Chemistry and Mechanics to Pathology and Therapeutics") held the view that death consisted in the stoppage of the conversion of latent force into active force, caused by some arrest of action in the heart, lungs, or brain. This view of Dr. Jones's appears, to my mind, to be a correct one; and we often note what a wonderful conservation of energy there is in the automatic nervous system, and I might almost go so far as to say in the medulla oblongata itself in some aged people, even at their period of dying. Although the hand of death can be seen to be indelibly fixed upon them, yet it will take days before the nervous system becomes finally exhausted, and the last spark of vitality is for ever extinguished.

We have now seen that heat and energy are the result of molecular motion, that vitality is coexistent and absolutely dependent upon motion, and that the energy dependent upon either physical or vital motion becomes expended and finally exhausted. The great problem, then, which we have to solve, appears to me to be this: In what manner can we best determine that amount of conservative energy in our bodies which shall at all times render the supply of nerve force adequate to the demand made upon it? I think we have also seen that man's resisting power to overcome the exhausting influences which surround him in almost every sphere of life, is due, and in proportion to, the inherent power possessed by his nervous centres to conserve those forces which correlatively make up vitality. In other and plainer words, the soundness of a man's constitution is in direct ratio with his inherent vital capacity to combat the natural tendency to death, and to resist the ravages of disease which undermine and destroy his conservation of energy. If we but investigate the question of latent force or reserve of nervous energy a little further, we shall then frequently find that, if a continuous demand be made upon man's reserved store of energy, no matter how

strong the man may be, his vital powers and force of resistance become unavoidably enfeebled, and in some way or the other, if life itself be not shortened, he becomes prematurely old.

I have had many patients under my care who suffered from changes in the brain and spinal cord, such as we meet with in progressive muscular atrophy and the general paralysis of the insane, where the patients have been at one time of their lives notably athletic and exceptionally strong. Now, these diseases, I maintain, arise from too great a demand having been made upon the reserve forces of such patients as these. We have, however, to bear in mind that there are two reservoirs of nerve force, or conservative energy, in our bodies, which, although immediately connected, nevertheless act more or less independently of each other. I refer now to the automatic force as distinct from volitional force.

The consideration of this question leads me into a field of inquiry which is almost inexhaustible, and I must therefore lay down my deductions in a simple practical way. My experience guides me to the conclusion that automatic muscular exertion rarely, if ever of itself, produces such a drain upon the reserve forces of the individual as to lead to any serious or vital consequences, provided the individual in question be leading in other respects a healthful and invigorating life, free from any kind of debauchery, worry, or mental strain, and, moreover, provided he has a stable and well-organized nervous system to work upon.

On the other hand, we meet with professional and business men, as well as men of pleasure, such as the gambler and the *débauché*, who reach the zenith of manhood with a splendid physique, but who, probably, from circumstances, are compelled to lead a life of overstrain, and in consequence of this their reserve forces are constantly being overtaxed, brain function becomes disturbed, and rapid exhaustion of the nervous system is frequently the inevitable sequence.

CHAPTER III.

Some of the Ordinary Symptoms of "The Neurasthenic."

IN order to fully and accurately describe the signs and symptoms which are common both to the young and to the aged, who are suffering from *nervous exhaustion*, we must bear in mind that the symptoms are in some instances illusory, subtle, and difficult of analysis and classification, and it certainly requires more than ordinary skill and observation to distinguish a case of mere exhaustion of the nervous system from a case of true commencing organic disease, either of the brain or of the spinal cord. And for this reason: *that every form of nervous disease, and, as I would contend, every form of disease which is not nervous, begins and takes its origin in nervous exhaustion.*

There are certain well-known diseases of the brain and spinal cord which present a definite train of signs and symptoms, which indicate as near as possible in what part of the nervous centres the disease exists.

Yet there are, on the other hand, many symptoms and even signs of apparently organic changes of the brain and spinal cord which, upon careful examination, are found to be due to nothing more than *nervous exhaustion*.

It is in such cases as these that the opinion of the so-called nerve doctor, or man of experience in this branch of medicine, is of paramount importance.

It has been my good fortune to meet with many cases

of nervous disease which have been assigned to the class *incurable*, but which have entirely recovered under appropriate treatment ; whilst, on the other hand, it has been my misfortune to have to record many cases of incurable disease of the brain and spinal cord which have been originally considered to be cases of mere "nervousness," "mimicry," and "hysteria."

It is far too common a practice, even amongst professional men, to treat with indifference many of the incipient signs of the most serious and grave degenerations of the brain and spinal cord. To believe that a patient is feigning disease because the medical man fails at once to recognize its true nature, and is unable to trace it to its origin, shows culpable ignorance, which is deserving of the most severe censure and reprobation. Yet so little is known, even now, of the nervous system, and the marvellous power which it possesses in controlling our every thought, word, and deed, that we ought to be the more careful—and, in fact, we cannot be too careful—in training our minds to thoroughly investigate the as yet almost inexplicable network of symptoms which present themselves to us in this field of laborious study.

Neurasthenia may be general, but give rise to local manifestations only.

Neurasthenia may give rise to an endless variety of signs and symptoms.

Are there any ordinary characteristic signs peculiar to the neurasthenic, apart from what may be called the more special ? Yes ; undoubtedly there are, and one of the chief ordinary characteristic signs is "the variability of the facial expression." This may vary repeatedly during the day. At one time the patient may look healthful, hopeful, cheerful, and bright, when from some trifling cause the countenance becomes careworn, haggard, distressed, and despondent. The facial expression is then a pretty sure indication of the condition of the neurasthenic ; although

the expression of the countenance alone must not be relied upon as an indication of neurasthenia.

The following are amongst the most ordinary signs and symptoms of nervous exhaustion :—

1. *An irritability, instability, and mutability* of the functions of the mind. Thought, memory, and perception are not correlated so as to give rise to the engenderment of perfect and complete ideation. Words may be misplaced in a sentence, and words or even sentences may be uttered or written which are totally foreign to the patient's real meaning, as in aphasia and agraphia. I have myself become so tired, and my brain so exhausted, that I have turned to the nurse when leaving her ward, and instead of saying, "Good morning," I have said to her, "Put out your tongue." This has been a temporary arrest of function which food and rest have immediately rectified.

2. There is a marked absence of steadfastness of purpose. For instance, a character which was notably strong and resolute becomes weak and vacillating under the influence of exhaustion of the brain.

3. *Mental control is defective.* There is a want of power of attention and ideal concentration in writing, reading, and particularly in thinking. In the enforced act of thinking, distressing feelings in the head are produced, and giddiness, and transitory loss of intellectual power.

4. *Mental irritability* is a common condition, and is evinced more frequently in a man's domestic circle than in any other way. He frets and worries, and becomes ill-tempered and even passionate over mere trifles, which, under ordinary circumstances, would pass his observation without special notice. Even the play of his children distresses him.

5. *Hopelessness, melancholy, and despair* are close attendants upon the neurasthenic. There is what Dr. Beard calls "an instinctive consciousness of inadequacy before us." This often occurs in patients of high moral rectitude

and religious feelings, and also in patients of advanced intellectual development.

6. *Morbid fears* are common to the neurasthenic, and I am constantly hearing them detailed by my patients in a variety of ways, such as "fear of society," "fear of woman," "fear of disease," "fear of heights," "fear of certain places," "fear of individuals," "fear of lightning," "fear of crossing the road," fear of everything, and fear of consulting the physician whose opinion they are anxious for.

7. *The ego* will often become intensely exaggerated, and although the neurasthenic may be diffident in manner, still he is extremely self-conscious, and he often labours under the idea that, whether at church, or in the street, or at any place of public amusement, he is the observed of all observers.

8. *Application* to work for any given time is altogether out of the question. Patients have told me that, when in health, they could work for twelve consecutive hours, whereas now they were unable to fix their attention upon any given subject for as many minutes.

9. *The memory* in some cases will be markedly affected, whilst in other cases it will not be affected at all.

10. *The special senses* of smell and taste are sometimes morbidly acute, or morbidly inactive, or absolutely perverted.

11. *Headache* and strange feelings, especially at the fore and back part of the head, and spinal pain and tenderness upon pressure, and sensations of burning heat and cold in the spine are extremely common symptoms, particularly in women, and so are neuralgias and a feeling of soreness about the muscles, and cramps in the calves of the legs.

12. Abdominal sensations, tenderness, and even pain, are much more frequent amongst women than men. I often hear of these feelings and sensations as indescribable, or too dreadful to be thought of. At times, and not unfrequently, they form the origin of an epileptic aura, which

rarely, however, exceeds the minor class of epilepsies. This aura does not generally extend higher than the back of the neck, and does not produce temporary unconsciousness. Ovarian hyperæsthesia, sometimes amounting to great and excessive tenderness, is frequently associated with and due to nervous exhaustion; it is usually accompanied by a feeling of weight and heaviness in the left leg, and other so-called symptoms of hysteria. Constipation, uterine derangements, and piles are to be found in connection with these cases; and although they are often considered as the cause rather than the effect, I am entirely of a different opinion.

13. Giddiness, noises in the ears, momentary loss of consciousness, abstractedness, sudden outbursts of profuse perspiration of the body generally, of the hands alone, or of the feet alone, specks floating before the eyes, and defective vision, are some of the most common symptoms of exhaustion of the nervous system.

14. Dryness of the mouth and throat, inability to swallow or take a deep breath, irregular action of the heart, and especially abnormalities of function of the vagus, spinal accessory, and sympathetic nerves, atonic dyspepsia, loss of appetite, or an inordinate craving for food or drink, constipation, an arrest of the ovarian and uterine functions, blushing, coldness of hands and feet, etc.—all of these are frequently associated symptoms of nervous exhaustion.

15. In reference to sleep, we find, as a rule, that patients are wakeful. They tell us that they awake about two or three o'clock in the morning, and after this they are unable to sleep at all; or, on the other hand, there is a morbid tendency to sleep, especially after eating. Undoubtedly many severe cases of exhaustion of the brain are brought about by not paying sufficient attention to sleep, to rest, and nutrition. Of course excessive fatigue, overwork, worry, sensuality, mental anxiety, shock, and grief are among some of its most important causes.

16. The manner of the neurasthenic will be set down by the public and by his friends as *strange* and *peculiar*. He will be either irritable or moody, or particularly cheerful and good tempered, and he not unfrequently thinks that he is beset by danger and difficulties which can have no possible existence. No class of people are more anxious about the future than neurasthenics.

17. It is a sad misfortune, and yet it is a very common occurrence, for persons who are suffering from nervous exhaustion of the brain to give way to some morbid craving until it becomes a vicious and intractable habit. Many dipsomaniacs can assign their mania to an exhausted brain, and many a man has committed suicide from the same cause.

18. *Oversensitiveness*, apart from the mere *ego*, is a common feature of neurasthenia ; that is to say, for instance, the neurasthenic, not unfrequently, is the best of barometers. He is painfully sensitive to heat and to cold ; to a depressing atmosphere, and to a bright sunny sky ; to the seasons and to every change of wind. Dr. Beard writes on this subject with great force and truth, as follows :—"The tenderness of bunions and corns, the aching and stiffness of rheumatic and neuralgic sufferers, the general gloominess and misery of the exhausted before and during bad weather, are not imaginations, but realities as true as smallpox or measles, and quite as much worthy of professional study and consideration." This oversensitiveness is often most distressing before and during a thunderstorm. I have seen persons whose nervous systems have been so paralyzed that they have been, for the time, hopelessly and helplessly exhausted. *Oversensitiveness* is made manifest to an exhausted nervous system in so many ways, that it seems almost impossible to draw a line of definition. Idiosyncrasies in regard to food, medicine, and the environment generally, are manifestly peculiar to neurasthenia. There are nervous persons who cannot take the most simple

things without producing the most unpleasant consequences, and it is well known that we are sometimes disarmed in treatment on this account ; as, for example, when patients cannot tolerate opium, etc. Even the scent of certain flowers will produce a strange phenomena of symptoms. I admit that these things appear trifling, and are too frequently ridiculed by men who ought themselves to suffer from neurasthenia for twelve months. Of all mortals the neurasthenic demands our sympathy, our study, our care, and our skill. He requires our self-denying watchfulness, patience, tact, and perseverance. He is too frequently disregarded and cast aside, both by his doctors and his friends, and allowed to float about in a sea of troubles and afflictions, which threaten to engulf him. He is a prey to quacks and impostors of every sort, kind, and description ; and, like a drowning man, he catches at a straw as though it were to save his life. He is wafted about by physicians from one clime to another clime, from the torrid to the frigid zone. He is told by the charlatan that electricity is life—that he is devoid of the electro-magnetic fluid which is essential to his existence ; and thus he goes from pillar to post, until he finally gets cured, or resigns himself to his fate, or falls into the hands of the alienist.

CHAPTER IV.

On Special Forms of Mental Derangement and Bodily Ailments due to Nervous Exhaustion.

Depression and Melancholy.—The perversion of the normal mental processes, which gives rise to depression and to melancholy, may be classified and symptomatized as follows :—

First Form.

Carelessness.	Delusions.
Inattention.	Dread of society.
Inappreciation.	Mental stupor.
Indifference.	Absence of pain.
Sulkiness.	Coldness of extremities
Perversion.	Anorexia.
Fits of excitability.	Constipation.
Taciturnity.	

Second Form.

Despondency.	Morbid fears.
Hopelessness.	Defective <i>morale</i> .
Depression.	Dyspepsia.
Want of application.	Skin irritation.
Want of resisting power.	Spinal irritation.
Irritability.	Irritable mucous membrane.
Fidgetiness.	Variable urine.
Impulsiveness.	

I cannot say that either one of these two forms is peculiar to any given period of life, but the periods of their occurrence are most commonly between the ages of fifteen and twenty-five, and forty-five and fifty-five. I have at the

present time under my care persons of both ages suffering from these forms of nervous exhaustion, and rather than enter into detail which is more or less wearying, I will give a few cases, which will be seen at once to illustrate the chief points to which I am desirous of drawing the reader's attention.

Case.—In the year 1882 I was consulted by a lad, eighteen years of age, with a decided neurosal history. His bodily development was good ; his mind was exceedingly elastic, unstable, and imaginative. He admitted youthful indiscretion, but otherwise he was exceedingly temperate in meat, drink, and exercise. At school he was rather taciturn and self-willed, and, as is usual in these cases, he preferred spending his leisure in reading than in play. When seventeen years of age, he easily became fatigued, depressed, and despondent, and during these fits of despondency, which came on without any apparent cause and which he could not shake off by any effort of will, he had the most morbid fears ; such, for instance, that something dreadful was going to happen to him, or that he would in some way injure himself. These attacks came on suddenly and left him suddenly. He complained of a strange dull aching sensation at the back of the head, a sense of weariness down the spine and across the loins, and there was some tenderness upon pressure in the region of Goltz's centre. The pupils of the eye were very dilated, and did not contract readily either to light or to accommodation. The tendon reflexes were exceedingly active. Digestion was active, but he complained of a sense of sinking in the region of the stomach. The urine was normal, but of rather low specific gravity ; the bowels acted well. He slept well. The sense of weariness and fatigue, even after slight exertion either of the arms or of the legs, was a very marked feature of the boy's state. He recovered after a prolonged treatment of strict hygiene, liberal diet, mental and bodily rest, good moral control, and the occasional application of the con-

stant galvanic current to the spine and medulla, with general abdominal faradization. This case is an example of a class which is exceedingly common, due to the same cause, and productive of the most disastrous consequences, not only at the time, but even in years to come. Drugs are of little if they are of any use, and the treatment to be effectual must be decisive and prolonged.

Case.—*The following case, the notes of which I read to the members of the Clinical Society of London in 1880, is typical of a class.* Its chief feature was the distaste for food, and the determination not to take it under any circumstances. A. T——, aged fourteen years, was admitted into the Hospital for Epilepsy and Paralysis under my care in the year 1880. In the early part of the summer she began to *decline*, and stated that she could not swallow food, and exhibited great obstinacy of disposition. She would cry at the slightest opposition to her wishes, and often without any apparent reason. She continued in this state for some time, getting worse rather than better, until the month of February, when she went thirteen days without taking food, and she became so weak that her friends sat up with her for nearly a week, and one night they thought she was dying. Her father proposed several times to send her into the county hospital at Colchester, but his propositions were rejected, for it was protested that the girl would never survive the journey.

When I first saw her I at once recognized her condition. She was thin and emaciated, and was unable to stand without assistance; the eyes were downcast, the cheek-bones were prominent from wasting of the cheeks, and the angles of the mouth were drawn down, so that she looked the picture of misery; the voice was scarcely audible, and the least thing would make her cry. She was taciturn, shy, and reserved; she did not complain of pain. There was a general morbid state of functional inactivity: all her movements were slow, and her mind was equally

inactive ; the breath was offensive, the tongue fairly clean, the bowels obstinately confined, and the evacuations were pale and clay-coloured. The temperature was never over 98° Fahr., and frequently below it ; the extremities were cold and of a blueish colour ; the special senses were normal ; the pupils of the eyes were sluggish, and did not contract readily to light. Pulse 120. Resp. 20. There was no marked anæsthesia of the fauces ; no globus or other hysterical symptoms. Of course the great feature in the case was her disinclination to take food, and I had frequently to threaten that I should resort to feed her by forcible means ; but fortunately this mode of procedure was avoided. She was in the hospital for over two months, and her condition upon her admission and upon her departure was very striking and characteristic. She had gained very considerably in weight, and instead of being taciturn and reserved, she was cheerful and agreeable to all around her, and took her food without any reserve or hesitation. The cure was unquestionably brought about by the frequent administration of fluid nourishment. I made it compulsory upon her to take three eggs, one pint of the strongest beef-tea, three pints of milk, and three ounces of brandy (all beaten up together) at frequent intervals during the twenty-four hours. The nurse upon several occasions experienced the greatest difficulty in overcoming her objection to food ; but firmness and persuasion at last conquered, and in the course of a few weeks very little difficulty was experienced. As soon as this took place she rapidly improved, and left the hospital quite well. No medicine was administered, excepting half a drop of croton oil occasionally, to relieve the bowels.

Case.—Some years ago I was requested by Mr. Whitmore and Sir W. Gull to take charge of a gentleman, aged sixty years, who was suffering from extreme nervous exhaustion and a determination not to take food. He was greatly emaciated, and so weak that he scarcely had power

to turn his body in bed, and after careful examination we were in agreement that he did not suffer from any kind of organic disease, neither from sign or symptom was any disease suspected. He was at times taciturn and morose, but his mind was clear and his memory good. He improved greatly by the frequent administration of fluid nourishment.

Case.—A young lady, aged nineteen years, was brought to me by her mother, in the year 1882, and she was said to be suffering from consumption, possibly on account of her extreme emaciation and dry cough. For some months previous to my seeing her she had been under the care of a well-known physician, and all kinds of drugs had been administered, and for months cod-liver oil had been rubbed into the body every night, and her mother said that she had taken dozens of bottles of maltine; still she lost flesh and became worse daily. She was depressed, taciturn, and, in fact, melancholic; she avoided society, and was utterly indifferent to those who were most near and dear to her; it was with great difficulty that she could be induced to take food. When I first saw her, it was evident that unless something were done for her, and quickly done, she must die. The least exertion was productive of the most profound exhaustion. The circulation was slow and languid, but at times feeble and quick; the hands and feet were cold, and there was a decided diminution of body temperature. The bowels for some months had been relieved only by hot-water enemata.

My treatment consisted in the administration of fluid nourishment, composed of strong soup, eggs, milk, and brandy every two hours, with mustard foot-baths every night, and the common galvanic current to the spine, and abdominal faradaic massage. A marked improvement was visible after two weeks of this treatment, and although the cure was a protracted one, she eventually made a complete recovery.

The treatment of these cases of nervous exhaustion is unquestionably the most important point which the physician has to consider, and it is really astonishing to see with what remarkable rapidity these apparently hopeless and helpless cases are restored to perfect health when they are placed under proper and appropriate treatment, even when death seems inevitable. I think it will be admitted that the patient who is dying of starvation, because she wilfully and persistently refuses food, cannot be looked upon as of sound mind ; at all events, for the time being, I think it is wise that such a patient should be placed away from her immediate friends, and be nursed by one who will act with resolution, kindness, and determination. I have often found it to be a very difficult matter to effect my purpose in this respect, and in some cases it has not been found absolutely necessary ; but in others I have found myself powerless to do my patient any good whilst she has been subject to the sympathy and irresolute action of her immediate friends. It has been truly said that in some cases "It is cruel to be kind."

Then the case should be placed under the care of a highly-trained nurse, who would, of course, be held responsible for the proper carrying out of the treatment. I know there are many physicians who are inclined in the first instance to treat these cases as atonic dyspepsia, to limit the diet to certain articles of food, to administer mineral tonics—maltine, Easton's syrup, pepsine, and so on. I am bound to say that this, in my experience, is anything but the appropriate treatment. There is no want of saliva or gastric juice, but there is an atony about the secreting glands as there is about the body generally, and they want stimulating by the frequent introduction of food into the stomach, and it matters not whether the food be solid or liquid so long as food be taken ; but it is much more easy to make a patient, under such circumstances, take fluid rather than solid nourishment, and although I should

be strongly opposed to the administration of alcohol alone in any form, yet I am so thoroughly impressed with its value in these cases, in combination with eggs, milk, and strong meat stock, that I order the patient to take as much as three or four ounces of brandy in the twenty-four hours. Food of such kind as that just mentioned should be given every two hours.

Dr. Weir Mitchell, of Philadelphia, in a very interesting little book, entitled "Fat and Blood, and how to make them," entirely bears out my views with regard to feeding—views which I have put in practice for many years. He says, "Nothing is more common in practice than to see a young woman who falls below the healthy standard, loses colour and plumpness, is tired all the time, and by-and-by has a tender spine, and soon or late enacts the whole varied drama of hysteria. As one or other set of symptoms is prominent, she gets the appropriate label, and sometimes she continues to exhibit only the single phase of nervous exhaustion. Far more often she runs the gauntlet of gynecologists, plaster jackets, braces, water treatment, and all the fantastic variety of other cures." He goes on to say as follows :—"I see every week—almost every day—women who, when asked what is the matter, reply 'Oh, I have nervous exhaustion.' When further questioned, they answer that everything tires them. Now, it is vain to speak of all these cases as hysterical, or, as Sir James Paget has done, as mimetic. It is quite sure that in the graver examples, exercise quickens the pulse curiously, the tire shows in the face, or sometimes diarrhœa or nausea follows exertion ; and though while under excitement or in the presence of some dominant motive they can do a great deal, the exhaustion which ensues is in proportion to the exercise used. But no matter how it comes about, the woman becomes pale and thin, eats little, and if she eats, does not profit by it. If such a person is emotional she does not fail to become more so, and even the firmest

women lose their self-control at last, under incessant feebleness. Everything wearies her—to sew, to write, to read, to walk—and by-and-by the sofa or the bed is her only comfort. Every effort is paid for dearly, and she describes herself as aching and sore, as sleeping ill, and as needing constant stimulus and endless tonics. Then comes the mischievous *rôle* of bromides, opium, chloral, and brandy. If the case did not begin with uterine troubles, they soon appear, and are usually treated in vain, if the general means employed to build up the bodily health fail. Medical opinion must, of course, vary as to the causes which give rise to the symptoms I have so briefly sketched. In fact, they vary endlessly; but I imagine that few physicians placed face to face with such cases would not feel sure that if they could give the patient a liberal gain in fat and in blood, they would be certain to need very little else, and that the troubles of stomach and bowels and uterus would speedily vanish.”

Case.—Miss C——, with a marked nervous history, and over twenty years of age, came under my care with the following signs and symptoms, clearly indicative of nervous exhaustion, both mentally and bodily. The attacks came upon her at varying intervals of time. She became depressed, reticent, despondent, careless, inappreciative, indifferent, perverse, and sulky. Restlessness was a marked feature, and so also was sleeplessness. She frequently suffered from headaches, accompanied with giddiness. The hair of the head was very peculiar, and, as she says, all alive with electricity, especially during what is called thunder and electric weather; it engendered a succession of cracks when rubbed or brushed. The pains at the back of the neck and along the spine were very distressing; she complained frequently of intense pain in the spine, as though it were on fire, and the tips of the vertebral spines became red upon the least pressure. Her joints were exceedingly painful, swollen, and hot. The feet and hands

felt burning, and swelled suddenly, to such an extent that she was unable to remove or put on her boots and gloves. The hands and the feet underwent remarkable changes in colour and general appearance; they varied from a state of softness and whiteness to that of roughness and redness, and the palmar surface had a peculiar yellow appearance. She suffered at times from well-marked attacks of gout in the great-toe joints, and also in the back of the heel. The left arm and leg frequently gave way, and became, for a short time, almost useless. Whenever she felt unwell the left leg always ached, and it required an effort to move it with anything like freedom. The appetite was variable, but excessive thirst was a marked sign. The urine was normal. She recovered and married.

Case.—A gentleman over sixty years of age, of nervous history, consulted me some months ago, complaining of extreme exhaustion, and requested me to take him under my care, as he had heard of my success in the treatment of similar cases. He said that he felt exhausted upon the least exertion; that he would suddenly break out into a profuse perspiration. The exhaustion was always worse between noon and three p.m. He contracted syphilis when young. He had suffered from attacks similar to the present one on several previous occasions, but never so severely. Between the attacks his head was perfectly clear, but during the attacks, which had lasted sometimes for many months, he became heavy, dull, stupid, and totally unable to conduct his business affairs. There was no positive pain in the head, but a kind of burning sensation, extending from the forehead to the occiput, which affected both the sight and hearing. The eyes felt burning, a sensation which was relieved only by pressure. Noises in the ears were constant. He said that his whole nature became changed; he was unable to bear the sight of his children, and with tears in his eyes, he added, "No better children, doctor, ever lived." He was unable to sit in a con-

fined space, and his great dread was the workhouse. His statement was, "My existence is simply wretched." The appetite was always good, and at times he ate voraciously but never felt satisfied. Within half an hour after taking a meal he felt weak and faint, as though he had not taken any food. Insomnia did not trouble him. He became rapidly well under the influence of iodide of potassium, and upon his recovery he remarked, "I now feel that hope has returned, and that there is something to live for;" whereas before everything appeared distorted, and he had lost interest in everything. I have records of a large number of cases where the mind has been the prime element involved, yet always in association with subjective physical defects, due entirely to nervous exhaustion; and in some of these organic, incurable disease was diagnosed, but their cure dispelled the delusion. Yet, on the other hand, I have also records of cases of organic disease of the nervous system, which commenced and continued for some time as nervous exhaustion, but ultimately gave evidence of positive structural change and its unfortunate results.

Morbid Fears.—Some people are by nature fearful; in fact, it is just as inherent in some to be fearful as it is in others to be courageous. Courage and fear are as instinctive as individuality. They vary in degree and kind with race, sex, and age. Fear, like courage, is equally an attribute of life. It is only when the nervous system is deranged, exhausted, unstrung, and unstable, that the mind becomes the seat of morbid fears, as well as morbid acts of courage and daring, which are frequently the result of impulse. A man or woman who is the subject of morbid, mental, and emotional states will often perform a courageous act, and wonder afterwards how they could have done it; so, in like manner, they may be fearful of performing an act, and feel ashamed of their timidity. To perform a daring deed by impulse does not denote courage, any more than the inability to walk along a plank at a given height

denotes fear. Yet both conditions are indicative of defective resisting and co-ordinating mental power. Morbid fear is just as much a paralysis of mental power as an inability to walk from paralysis is indicative of want of nerve power.

A lady said to me only the other day, "How can it be, doctor, that my son is such a wreck of his former self? At one time he literally seemed not to know 'what fear meant,' and now he seems fearful of everything; and when challenged to rouse himself and show some manly instinct, he breaks out into a profuse perspiration, and his knees shake under him, and he becomes as pale as a ghost;" and all the answer which I could give was—"That his nervous system was so functionally deranged, depressed, and exhausted, that his normal power of resistance to overcome the emotion of fear could not establish itself. There was a lack of nervous force. That the force which he had was not at his own disposal; in fact, that the volitional *ego* was beaten by the subjective *meum*." This defective balance between the power to will and the subjective power which will not permit the exercise of will is one cause of which morbid fear is the effect.

A patient of mine, holding a good position in the financial world, in consulting me the other day, said, "I could never repay you sufficiently if you would cure me of a morbid fear which I have of railway travelling. I want to go some distance to-morrow, to complete a business transaction involving thousands of pounds. I am so nervous of railway travelling that I can scarcely sit in a railway carriage."

A gentleman, some time since, was under my care, and he had the same morbid fear in reference to railway travelling. He had to go to Scotland with his wife and family, but the dread of the journey by railway was insuperable, and he declared that he would walk, for riding by rail was impossible. At last he decided to try, upon one con-

dition (for he had pledged himself not to drink anything except a bottle of stout at night), namely, that I should, upon medical grounds, permit him to drink a bottle of stout just before he started. I agreed to this, and he travelled the whole journey without any nervous symptom arising.

There are certainly more things in man's nature than are dreamt of in our philosophy, even in this nineteenth century.

A patient and a friend of mine, whilst talking to me the other day and seeking my advice, said, "I wish you could tell me what it is, doctor. You know my business must be in a measure speculative. At one time, when I went on 'Change I felt that I should be successful, and I was invariably so; now things are reversed. I have a morbid fear about executing the most trivial transaction. It almost amounts to a dread of failure. I cannot tell what it is comes over me, but I hesitate and hesitate until, in fact, the chance is lost."

Many patients tell me, "I should have seen you long ago, doctor, and I wanted badly to see you. I have written letter after letter to you, and then torn them up and never posted them; and, would you believe it, I have actually gone to your door and pulled your bell, and walked off as fast as I could go on account of some morbid fear coming over me."

A lady patient of mine is unable to leave her home for even a short distance, either on foot or in her carriage, owing to an indescribable fear coming upon her; this is preceded by a strange feeling in the stomach, which rushes to the back of the head and fixes her to the spot upon which she happens to be at the time, so that she is afraid to move, either to advance or retreat.

The fear of lightning (astraphobia) is common enough, but in some persons it becomes morbid, and is associated with distressing symptoms, as great spinal irritation, "back head pain," nausea, vomiting, diarrhœa, profuse sweating

and alarming prostration, and an anxious dread more terrible than death. I have seen more than one case of vasomotor paralysis and thrombosis of the veins of the leg, due entirely to shock from lightning in very nervous females.

Fear of places (agoraphobia) is sometimes experienced by nervous people. One common instance is the fear which some people have of going to church, or any place where a number of people are congregated together.

A lady, who consulted me recently, said if there was one thing for which she had to thank me more than another, it was that she was now able to attend her church in peace, without the horrid fear and dread of something happening to her which she had when she went to church in former times. In fact, so distressing had this feeling become, that for some time she had been unable to go to church at all, which to her was far worse than any bodily affliction.

Some people have a great fear of narrow close places (claustrophobia). Dr. Meschede gives an instance of this form of morbid fear. The patient, a young man twenty years of age, was seized with a feeling of giddiness and confusion when in a small narrow room. In the summer he could not sleep in a room at all, but was obliged to camp out.

Dr. Beard gives an interesting case of this kind of fear. A gentleman of middle life could walk up Broadway without difficulty, because shops and stores, he said, offered him an opportunity of retreat in case of peril. He could not, however, walk up Fifth Avenue, where there are no stores, nor in side streets, unless they were very short. He could not pay a visit to the country in any direction, but was hopelessly shut up in the city during the hot weather. One time, in riding in the stage up Broadway, on turning into Madison Square he shrieked with terror, to the astonishment of the passengers. The man who possessed this interesting symptom was tall, vigorous, full-faced, and physically and mentally capable of endurance."

The morbid fear which has been called by Dr. Beard

"anthropophobia" is not at all uncommon. "The term applies to aversion to society, a fear of seeing, encountering, or mingling with a multitude, or of meeting any one besides ourselves." This state is to be found frequently among the young of both sexes, although I have found instances of it in persons of maturer years. It is usually associated with other forms of nervous exhaustion, and is the exact opposite of "monophobia," or fear of being alone.

Another well-known morbid fear (pathophobia) is to be found associated with nervous exhaustion, and is usually ascribed to hypochondriasis. The sufferer fears that he has all known forms of disease, and visits every kind of specialist. Sometimes he fancies that he is to be the victim of cancer, of consumption, of heart disease, of liver disease, of paralysis, of insanity, even when there is no sign or symptom of disease save his own morbid fear.

It is particularly interesting to note that there is rarely, if ever, any reasonable cause for these fears, although it is quite possible that functional derangement of organs may exist. The morbid dread of organic disease may be coexistent with such a condition, but this is not usual. However, it is our duty as physicians to make ourselves and our patient quite sure upon this point, and to gain his entire confidence and faith in our diagnosis.

The varieties of morbid fear which have been referred to may come on quite suddenly, and last for months and even years, when they may pass away imperceptibly, and quite as suddenly as they made their appearance. They should certainly be treated actively from the very first. It is of no use telling patients that they are mere fancies, and that they must be shaken off, and that they are mere absurd ideas; something more than this is required, and this something more will be found in securing normal functional activity, especially of the bowels, the liver, the kidney, and the skin, according to the rules laid down in the chapter on treatment.

Sleeplessness and Wakefulness.—No physician, either of the past or of the present, has ever written a more scientific and able treatise on this subject than Dr. Hammond of New York ; and like all his other writings, it bears the impress of a master mind, strict in its reasoning, comprehensive in its grasp, logical in its working, and practical in its results. It would be well for medicine if we had more men like him. Hammond and Durham were the first to prove by physiological experiment that the brain during sleep was more or less bloodless, that the circulation of blood through the brain was of greatly diminished activity ; and physiologists of to-day are willing to accept this theory, for the reason, possibly, that they cannot disprove it. Sleep varies in degree and kind from the slight to the profound. It may be tranquil ; it may be disturbed ; it may be short or it may be prolonged. Sleep is as necessary to the human economy as air is to respiration and vitality. It is as natural for man to sleep every twenty-four hours, as it is for the earth to turn upon its axis. Sleep favours nutrition, and nutrition is essential to sleep. Sleep equalizes the balance of power between the automatic and the volitional. This balance of power is essential to sleep. The sympathetic centres never sleep.

In the consideration of sleep, we must look upon the brain as an entity, as a privileged general commanding an army, having the power to command and direct his subordinates, looking after their welfare, conserving their force and their energy, and in all matters demanding obedience and submission. The brain, when harassed, loses its power of control. Its integrity becomes disturbed, its powers are held in abeyance, and it becomes like a sulky child, fitful, fretful, obstinate, and obdurate, and will listen to nothing but absolute compulsion. Coaxing may effect a great deal, and a very little, as we shall soon see, will sometimes do much to induce sleep. The man

who lays his head upon the pillow with the determination to sleep, never gets it ; and if he does, he feels in the morning very like Washington Irving—"very fatigued with the night's rest." The brain says, "It is my duty to command ; profound and unconscious sleep are the dictates of my will. If you disturb me unnecessarily, by stirring up strife and discord amongst my subordinates" (that is, disturbing the sympathetic nerve centres by overfilling your stomach with wine and goodly viands), "I'll have naught to do with you. When you have restored order amongst yourselves, then will I take it upon myself to be as good to you as heretofore ; or, if you disturb me by making too great demands upon my intellectual strength" (that is, by prolonged mental labour, anxiety, and worry), "I shall lose my power to give you sleep. My power of command will be lost, and defeat and ruin will ensue." Man wills to sleep, but the brain refuses. The brain wills to sleep, and man has no power to resist. The brain habituates itself to lethargy as much as it does to activity. The brain is responsive to mental ideation. The man falls to sleep with the fixed idea that he has to wake at a certain hour in the morning. The brain receives this impression and good-naturedly responds to it ; but this is to the brain a superimposed effort, and it must not be too often repeated, for the brain, like the individual, is subordinate to habit, and the man wakes whether he desires it or no. One of the most troublesome forms of insomnia is that when the individual wakes regularly at a certain hour, and is unable to sleep again until the time, perhaps, when he has to be getting up.

The influence of mental ideation upon the brain in inducing sleep when influenced from without is somewhat surprising and remarkable. The superinduction of genuine sleep may often be accomplished in a few minutes by the expressed determination of an operator that the "subject shall sleep." Dr. Carpenter says that he has seen a lady

sent off to sleep by the conviction that a handkerchief held beneath her nose was charged with chloroform: the same symptoms were observable as if she had actually inhaled the narcotic vapour. He also says that he was assured by Sir James Simpson that a patient of his was made to sleep for thirty-five hours, with only two short intervals of permitted awakening, by the assurance of the operator that she could not remain awake. Dr. Lacock mentions a case where so long a sleep followed the administration of a bread pill that it excited alarm.

The physician is often surprised by the small amount of sleep required by certain individuals who have generally great mental and nervous energy. Boerhaave is recorded not to have closed his eyes for six weeks in consequence of intense study. A lady patient, who consulted me for insomnia, declared that she had not closed her eyes for a week. She suffered from nervous exhaustion and spinal irritability. The use of a glass of stout and a good meal before going to bed completely cured her.

Scarcely a day passes that I am not consulted by patients who, in connection with other nervous derangements, are the subjects of insomnia. Sometimes the insomnia (for which no specific cause can be found) is evidently the origin of the nerve derangement, but more frequently the sleeplessness is the effect of a mind diseased by worry, anxiety, and other forms of prolonged mental strain.

Sleeplessness in some is looked upon by them as very distressing, whilst in others it gives rise to the most morbid ideas and gloomy conjectures. This condition we find most graphically depicted in "John Inglesant," in terrible sleepless hours, in hours of dread weariness of life, in hours of nervous pain more terrible than all. Wordsworth, in the following sonnet ("Poems of the Imagination"), gives what I think is a very true description of sleeplessness and its pains:—

A flock of sheep that leisurely pass by,
One after one ; the sound of rain and bees,
Murmuring ; the fall of rivers, winds, and seas,
Smooth fields, white sheets of water, and pure sky ;
I have thought of all by turn, and yet do lie
Sleepless ! and soon the small birds' melodies
Must hear, first uttered from my orchard trees :
And the first cuckoo's melancholy cry.
Even thus last night, and two nights more, I lay
And could not win thee, Sleep ! by any stealth ;
So do not let me wear to-night away :
Without thee, what is all the morning's wealth ?
Come, blessed barrier between night and day,
Dear mother of fresh thoughts and joyous health ! ”

A patient of mine tells me that he never really sleeps, for he always seems to be in a state of half-consciousness, which is far worse than being awake.

The sleep of the epileptic is rarely a tranquil sleep ; it may be profound so far as the sleeper is himself concerned, but to the onlooker there is evidently a commotion within, evidenced by startings and waves of restlessness. Attacks of epilepsy during sleep are far more frequent than attacks of epilepsy during waking hours. Disordered sleep is a far graver condition than an absence of sleep, and of course we have nothing to say here in reference to disorders of sleep associated with fever, blood-poisoning, and other allied conditions ; but there are some disorders of sleep due to nervousness and nervous exhaustion which demand a passing consideration.

I am often told by patients of the strange sensations which they experience just upon going to sleep. It may be that they are conscious of an indefinable something, beginning in the foot, or in the stomach, or at the heart, or in the little finger, and quietly extending to the back of the head, and then it seems to leave them with a kind of report ; or it may be a tingling and numbness and heat of the extremities, a feeling of burning, accompanied with patches of redness here and there upon the trunk of the body. Sometimes

these sensations give rise to a feeling of dread, of anguish and despair. A patient of mine says she dreads the hour for going to bed on account of the horrible feelings to which she is subject. A lady now under my care, who is completely worn out with worry and anxiety, has suffered greatly from these symptoms just noted, headache, backache, irritable and tender spine, falling off of the hair, patches of burning and redness of the forehead, face, and extremities, and a peculiar state of the legs and feet. The feet and legs are of marble whiteness in the morning, and cold as ice, but sensitive; at night they are of vermilion redness, burning hot, and exceedingly tender to the touch, and the sleep is greatly disturbed in consequence. This lady was cured by the administration of quinine, iodide and bromide of potassium, a hot bath just before going to bed, and a strong mustard cataplasm to the pit of the stomach.

These disorders of sleep are altogether distinct from nightmare, as it is called. Nightmare is generally due to an overloaded stomach and a partial arrest of the digestive process. The disorders of sleep just noticed are due to a want of food, and are frequently relieved by a good meal and alcohol. There is nothing within the range of medicine more valuable in these cases than a full dose of bromide of potassium, with bicarbonate of potash and the ammoniated tincture of valerian.

A gentleman lately complained to me, in addition to other symptoms of a purely nervous character, of want of sleep after two o'clock in the morning. He had taken chloral, opium, nepenthe, morphia, and other narcotics, with only temporary benefit; and besides this he had, according to advice, left off taking stimulants and tea and coffee, all of which he had been told were death to him. As he was a man who had been accustomed to live generously, this deprivation from stimulant, and restricted diet, and want of sleep was simply killing him. He was nervous, irritable, morose, melancholy, and exceedingly dyspeptic, although

his diet was of the lightest possible kind. I cured this man in a week by making him eat as he formerly did, drink his tea and his coffee and his claret, and beyond this he took, by my special wish, a good chump chop, with a roast onion, and a pint of good Burgundy at ten o'clock. At eleven o'clock he took a full dose of bromide of potassium, and a teaspoonful of Oxley's essence of ginger in half a tumbler of hot water, and slept, as he said, like a top.

I do not know what may be the experience of other physicians in these cases of nervous sleeplessness, but I do know from my own experience that I get far better and more permanently satisfactory results without the use of narcotic agents, than I do with their use. Let it be clearly understood that I do not wish to underrate their value, and of course cases differ, and the physician's power of discrimination is often severely taxed. Practice, after all, leads to perfection. The man of extreme views is neither a safe guide nor wise counsellor.

Drowsiness is the opposite condition to insomnia or sleeplessness, and is equally a sign of nervous exhaustion. I am often answered by my patients, when asking them if they sleep, "Yes, I can sleep night and day." The brain may be anæmic during profound sleep, but I am greatly of opinion that this condition of drowsiness is due to venous cerebral congestion. I find that patients who suffer from drowsiness have very weak circulations, and the right heart is often dilated; and although they may not suffer from absolute headache, there is frequently a heaviness and fullness about the head and at the back of the eyes, which is aggravated by lying down. Handfield Jones is of opinion that drowsiness depends on defective nutrition of the cells of the hemispheres of the brain.

Nervous Headache.—This is unquestionably the most common of all common ailments. It exists among all classes of society, and is irrespective of age or sex. It is frequently hereditary, and, although it is often erroneously

called bilious or sick headache, is essentially nervous. It may be slight or exceedingly severe. Its chief seat is the forehead, the temples, and the top of the head. It usually affects one side of the head more than the other, and the eyeball of one side or both. The temperature of the head may or may not be increased, and where the pain is located it may be extremely tender to the touch. The gums and teeth may be tender, and the mouth and throat dry and parched. The normal smell is, perhaps, for the time perverted, and clear water may run from the nostrils. The eye on the affected side is perhaps bloodshot, and the pupil widely dilated. Vision may be affected in many ways, from dimness of sight and half-sightedness to complete darkness. Floating specks, and showers of stars varying in colour, may appear and obstruct the normal field of sight. Giddiness, swimming in the head, sickness, abnormal acuteness of hearing, intolerance of light, sudden flatulent distension of the stomach and bowels, an impulse of the body backward or forward, fleeting unconsciousness, numbness and coldness of the arm, or of one-half of the body or tongue, may accompany this form of headache, which it is quite certain is allied to epilepsy, neuralgia, hay fever, and asthma.

Marshall Hall states, "Nothing is so common, nothing is viewed of such trifling import, as the seizure termed 'sick headache.' Yet I have known sick headache issue in paroxysmal attacks of a very severe nature, both apoplectic and epileptic."

This is perfectly true, but it would be absurd to lead patients into the fear of either apoplexy or epilepsy in relation with nervous headache—a complaint which continues in some individuals from early life to old age. The direct cause of nervous headache is vaso-motor instability, irritability, and defective correlative integrity. The vaso-motor nerve centres become paralyzed, the reins are slackened, the vessels lose their controlling agency, and, like thoroughbred

horses, they run wild and bound with unchecked freedom and liberty. This is brought about by some slight external agency ; it may be an east wind, electric weather, cold, damp, worry, anxiety, grief, excitement, overwork, shock, railway travelling, overheated or badly ventilated rooms, wearing thin boots and thin socks, going too long without food, partaking too freely of sugar, pastry, and indigestible food, deficiency or excess of exercise, living upon a damp soil surrounded by vegetation, malaria, miasm. In fact, these headaches are, as a rule, associated with an hereditary ill-balanced, unstable nervous system, delicate organization, inability to make good blood, defective power of assimilation, general functional inactivity, highly emotional and frequently irascible disposition, and in some cases a dread of society yet a fear of being alone, weak pulse, constipation, or diarrhœa ; and, in women, excessive menstrual flow and leucorrhœa. The feet are at most times cold, and frequently sweaty ; the hands likewise may be cold and sweaty ; the fingers and toes are liable to chilblains ; the urine is variable in colour, quantity and density, and smell and reaction. We may sum up these symptoms and signs by saying that these headaches rarely occur in men or women whose general health and vitality are not below the ordinary standard. Those subject to them are incapable of prolonged or sustained exertion without feeling done up. They may be good for a spurt, but nothing more. The spirit is often too willing ; the flesh is truly too weak.

Nervous headaches and the headaches due to nervous exhaustion are much too frequently ascribed to "biliousness." Hence the popular idea that to cure it the stomach must be relieved of bile by vomiting, or the bowels by active purgation. I must maintain that this is a popular error. The giddiness, the vomiting, the jaundice, and the defects of vision are the *effects* of the disruption produced by the nerve storm ; they are certainly not the *cause* of the headache. A marked physiological feature in association

with the nervous headache is the wave of depression which precedes it and extends throughout the whole tract of the sympathetic system of nerves. It is the forerunner of the storm which follows ; shivering and increased temperature are indicative of the raging of the elements, whilst the jaundiced skin, the loaded turbid high-coloured urine, and the feeling of prostration are to be ascribed to the work of destruction which the organs and tissues of the body have undergone.

It must, however, be admitted that there seems to be some grounds for argument that the state of the stomach is not unfrequently the cause of these headaches ; and this was the general belief amongst physicians some half-century ago, when the function of the sympathetic system of nerves was but ill understood. Many persons who are the victims of nervous headache are most careful in their diet ; they eat sparingly, avoiding this and that because they have an idea that it will make them bilious, and still their headaches continue, and the less they eat the more severe the headaches become.

Yet it must not be forgotten that extreme irregularity of diet, and the too free use of wine, will in the nervous subject produce nervous headache, whilst the truly gouty and dyspeptic will suffer in some other way.

I have said that nervous headaches are essentially hereditary, and they are so in so far as the nervous habit of body is hereditary. We find if the parents have not suffered from nervous headaches, they have been afflicted with asthma, neuralgia, angina, insanity, epilepsy, or some other nervous affection.

Men, and especially women of the brightest and most varied intellects, of the highest mental capacity and culture, of the most amiable, docile, and generous natures, of unrivalled wit and vivacity (*la migraine est le mal des beaux esprits*), are often the subjects of the exhaustive form of nervous headache.

Now, I wish particularly to draw attention to this point, which has been to me a mere question of daily observation for years, namely, that these nervous headaches are invariably associated with an irritable and painful state of the spine. In some cases the spine is so tender that it cannot be touched without giving rise to great pain; in other cases the seat of pain has to be sought for. It is usually in the upper dorsal region (*regio cilio spinalis* of Budge and Waller). I have repeatedly percussed the spines both of men and women without any pain being experienced; but firm pressure applied to the spinous processes will often make the patient flinch, when, as I have said, more violent measures are productive of no result. This tenderness is not central, it is almost invariably unilateral. The great importance in diagnosis of these tender spinal spots in all functional nervous diseases cannot possibly be overestimated; and the value of this knowledge in treatment is, I fear, not duly appreciated, for I maintain that no system of treatment can be successful if this condition of the spine be lost sight of, and it is to my mind one of the best proofs of the nervous origin of the exhaustive form of headache which we are now considering.

I have records of many forms of nervous headache, and I bring forward one or more cases merely to show that they are not of the same uniform type which the uninitiated may suppose. We cannot hope to be successful in the treatment of headaches, if we are not by experience positively sure of the nature of the headache we have to treat, and then, not unfrequently, all our efforts most signally fail. I have a lady of middle age under my care at the present time, suffering from exhaustive nervous headache, coming on daily at eleven a.m. The pain of the head alternates with intense pain in the loin region of the spine, caused by over anxiety, want of sleep, and irregular diet. After passing the continuous galvanic current through the spine (negative pole in foot-bath, positive pole to the cilio-dorsal region)

for ten minutes, she is entirely free from pain, and feels perfectly well.

In the month of September, 1883, I was consulted by a young married lady, who was suffering from a typical form of exhaustive nervous headache, from which she had been suffering off and on for more than two years. There was spinal tenderness, and great pain over the region of the left ovary; indigestion, flatulence, and constipation were ordinary conditions. After going to stool the feeling of exhaustion was so great that she was completely prostrate for half an hour. The headaches in this case were cured by placing the feet in strong hot mustard and water, at the same time placing upon the head a towel (wrung out of ice-cold water) in the form of a turban. Mustard compresses to the abdomen, abdominal massage and faradization, with enforced nutrition, effected a complete cure.

There are some forms of nervous headache which are increased by faradization, but which are relieved by the continuous current, and *vice versa*. I rarely apply galvanism to the frontal, parietal, or temporal regions. My usual practice is to use sponge rheophores, and apply the positive pole to the nape of the neck, and the negative pole to the cervical sympathetic.

I should like to say a few words about what I call "back head pain." It is so common in connection with nervous exhaustion that it requires some special consideration, and it really occurs more frequently than frontal headache, although it is rarely so severe, and it is unusual for this occipital pain to exist at the same time with the frontal pain. This sub-occipital pain, I say, is not usually severe. Patients have difficulty sometimes in exactly defining it. Sometimes it is merely a sense of constriction associated with a feeling of stiffness in the muscles, or it may be a feeling of heaviness, or a sense of heat, or throbbing, or stinging at the back of the ears. Sharp shooting pains are

sometimes experienced. I find this condition much more frequent in men than in women. It seems common to mercantile men and speculators, whose brains are in a state of constant activity and worry. Over-anxiety and over-study are among its chief causes. In some patients I have found it associated with albuminous urine and commencing kidney disease. In all cases it is best relieved by dry cupping, counter irritation, and the internal administration of bromide of potassium and ergot.

I have a gentleman under my care at the present time who has suffered severely from nervous headaches. He says in the morning he generally knows when he is going to have his headache, by the dull pain or feeling of heaviness which he experiences at the back of the head. His headaches usually come on after breakfast, and present the usual distressing symptoms. Sometimes the headaches are preceded by an unaccountable feeling of emptiness just below the stomach, and an intense craving for food. It is interesting to note that he will go for two or three months without any headache, but at these times he is really never so well. He feels as though he had a weight at the top of the head ; he soon becomes tired ; his brain is inactive, and his spirits are depressed. Galvanism did him no good, but a blister, about four inches in length, applied to the cilio-dorsal region, relieved all his symptoms. His words were—"I feel wonderfully well, and, what is quite unusual to me, I feel in a happy frame of mind in spite of the blister." In all these cases, and in others of a similar nature, active counter-irritation should never be forgotten. This gentleman had taken all the ordinary remedies for years, without experiencing the slightest benefit. In considering the curative treatment of these headaches, many things have to be thought of. Specifics there are none, if exciting causes remain ; so the first thing to be attended to is to remove these. Such being done, we can direct our attention to general hygiene, diet, exercise, and rest ; after this, we can

administer our drugs, such as arsenic, valerianate of zinc, with watery extract of aloes, quinine in full doses, bromide and iodide of potassium, with ergot, galvanism, counter-irritation, dry cupping, and even the abstraction of blood by leeches. There is nothing in my experience that cuts short an acute attack so quickly as sitting before a roaring fire, putting the feet in hot strong mustard and water, applying ice-cold water to the head by means of a towel in the form of a turban, and administering a drachm of bicarbonate of soda with one drachm of bromide of potassium in half a tumbler of hot water, and sometimes this may be followed by ten minims of Battley's solution of opium, mixed with four ounces of brandy, in hot water. About every five minutes a drop of chloroform may be allowed to drop upon the forehead.

Dipsomania is the effect of an ill-balanced, unstable, nervous system. The family history of patients who suffer from this affliction often reveals insanity or epilepsy. Dipsomaniacs do not drink, as the ordinary drunkard does, for pleasure and boon companionship, whenever they have an opportunity: they give way to what seems to be an uncontrollable impulse for alcoholic stimulants, periodically and in solitude. How often do we see women, more especially than men, sit at the dinner table and refuse wine, when we know well that in their private chamber they drink anything that contains spirit? Yet, during the intervals of drink-craving, the dipsomaniac will frequently not touch liquor of any kind.

The dipsomaniac presents almost every feature of nervous exhaustion, such as subjective sensations arising from the sensory side of the nervous system, and tremors, tremblings, formications, unsteadiness of gait, morbid fancies, etc. I have in my time met with a large number of dipsomaniacs, and, strange to say, without a single exception, I have found them extremely pleasant, kind, courteous, and generous-hearted people, excepting at those

periods when the drink-craving was upon them. Yet, withal, there is indecision of character, a blunting of moral perceptions, defective power of resistance—in other words, a want of power of control—and in many cases a want of the sense of shame and the virtue of truthfulness.

Dipsomania is a true mania, and should be recognized as such by law. It is curable, but not by ordinary means. To say that dipsomania is to be cured by drugs or by galvanism is utter nonsense. Few men have studied these cases, or had more opportunities of studying them than myself, and I can safely say that nothing short of total abstinence will even form the basis of a cure. With this condition assured, the physician can rebuild the shattered, nervous framework by nutritious feeding, healthful mental and bodily recreation, and the administration of nervine tonics and soporifics, and by the employment of all those means which are necessary to a healthful standard, hygienic, moral, and religious.

Smoking.—I know of no habit so prejudicial to the nervous sufferer as that of smoking; yet I rarely know of a nervous man who does not smoke, or who does not try to smoke. Tobacco is one of the most active depressants which we have in ordinary use. The man who can begin the day with a pipe, fume all day if he pleases, and end the day with a pipe, is not a neurasthenic, neither is he likely to become one. Never a day passes but a nervous patient will say to me, "Don't refuse me my pipe at night, if you please." Yet it produces a most miserable train of symptoms in the nervous man. The vaso-motor paralysis induced by tobacco is not evidenced by nausea or giddiness at the time of smoking, but by a loss of resisting power and failure of courage, and a feeling of fearfulness under excitement, palpitation of the heart, and uncontrollable tremor. I would advise all neurasthenics to give up smoking as a bad and pernicious habit.

Sexual Impotence in the Male.—I purposely refrain from

writing an article upon the curative treatment of this form of nervous prostration, which is, however, one of the most common conditions of neurasthenia, and one which is repeatedly brought under my observation. Dr. Hammond, of New York, has, however, just written a most important and valuable work on this subject, which may be obtained of Baillière, Tindall, and Cox, King William Street, Strand, and which shows conclusively, in the most truthful and ungarnished language, the important part played by the mind and the nervous system generally in this disease.

Constipation.—From a popular point of view—I do not mean altogether by this a lay point of view—biliousness and constipation run hand in hand, and in order to effect relief violent purgation must be had recourse to. This is another of the fallacies of the past. We now consider that habitual constipation is, in a large number of cases, due to nervous exhaustion, to a morbid inactivity on the part of the spinal cord, which sends force to the intestinal muscles to enable the bowels to expel their contents; or I would rather put it thus, in plain language: Constipation is largely due to an exhaustive condition, or it may be to an irritable condition of the spinal centres, by which these centres are unable to meet the demand for activity which is made upon them through the sensory nerves. The normal peristaltic movements of the intestinal muscles ought to be of the most automatic and mechanical kind. The relief should be diurnal; and nothing gives more pleasure, or puts a man in a better temper with himself and his surroundings, than a complete and sensible evacuation of the contents of the rectum. A loaded lower bowel, especially in women and girls, gives rise to the most troublesome, vexatious, and serious results. I am quite sure that it is the cause of three-fourths of the displacements of the womb in young people, and reacts upon the nervous system generally, giving origin to all kinds of functional disorders.

The physician is never surprised to hear that the bowels

have not acted for one, two, or even three weeks. The feeling of great weakness and faintness after an evacuation of the bowels is not uncommon, and the patient will show clearly enough how real is the sudden enfeeblement thus produced, by the pallor of the face and the hurried action of the heart and of the breathing. I have a patient at present under my care whose distress after going to stool is really alarming. In this case there is no constipation, for the bowels act freely without any voluntary effort. The disturbance to the cardiac and respiratory centres must be of a purely sympathetic nature. In most cases of obstinate and habitual constipation we invariably find an irritable state of the spinal cord, and defective nutrition, and it is truly surprising to see how this condition is altered by change of air and change of the patient's general surroundings. A gentleman who consulted me for constipation and most troublesome flatulent dyspepsia of the bowels, was relieved immediately by change of air from London to the country. During the six weeks that he was away, the bowels acted freely and regularly, without the use of any form of aperient. Sometimes one part of the bowels alone may be paralyzed, giving rise to local distension and the appearance of a tumour. In such cases one grain of opium three times a day is the most efficient remedy. In the class of cases to which I particularly refer, abdominal massage, with faradization and the use of a cold-water compress to the bowels every night, will be found of great and lasting service, but it must be persevered in for some time. A very favourite and useful remedy is a teaspoonful of the compound licorice powder of the German Pharmacopœia, taken every night.

Nervous Diseases of Women.—There are few nervous diseases peculiar to women. I have seen men and boys with a highly wrought nervous system just as hysterical as women and girls. I utterly repudiate the idea that the ovaries and the uterus are the main sources of every nervous

state which a woman or girl gets into. According to some, an abrasion of the os uteri, or a version of this organ, is the cause of hysteria, melancholia, dementia, and every other perversion, mental and bodily. This is too utterly utter to receive credence for one moment. Of course the uterus requires medical treatment, local and general, in the same way that other organs do ; and so in like manner do the ovaries ; but I entirely deprecate the custom of overdoing, which has unfortunately become far too universal. I have seen young girls, admitted into asylums with hysterical melancholia, using pessaries because some deflection or version of the uterus was the cause of their mental state, when the uterus had no more to do with the disease, not so much in fact, as the pessary which was being worn. I have had young girls brought to me, suffering from typical anorexia nervosa, who have become decidedly worse from the general and local medication to the uterus which they had previously undergone, improve immediately they have been placed upon a highly nutritious diet and good hygienic surroundings. Mr. Griffin states (p. 135) that "menorrhagia and amenorrhœa are both less doubtful results of this irritable state of the cord ; the former is exceedingly common, and is frequently seen alternating with sickness or pain of stomach, headache, and epistaxis." Dr. Weir Mitchell, in his excellent work, "On Diseases of the Nervous System, especially in Women," delineates cases of exceeding interest which were invariably due to ill-balanced states of the nervous centres, and which required for cure good moral control, constant feeding, massage, and galvanism. In his article on "Mimicry of Disease," he gives an example of nervous influence and sympathy. It is the occurrence of vomiting in the husband of a pregnant woman. He was rather noted as an unfaithful mate. After five years of marriage his wife became pregnant—an event much desired. He seemed to reform, and was very much in her society. Her vomiting, which was extremely severe, at last affected

him every day or two, to his utter disgust. Her second pregnancy gave rise to a return of this malady. She ceased to be sick with her third child—certainly with her fourth ; but so soon as on each occasion he became aware of her state, his vomiting came on, and lasted for a month or two.

Neuralgia.—In my work on Neuralgia, I have laid it down as a rule which rarely admits of exception, that neuralgia is due to debility of the constitution in general, and to exhaustion of the brain and nervous system in particular. “The pain of neuralgia is essentially the prayer of the nerve for healthy blood.” Section of a single nerve does not and cannot cure the disease. The section of a nerve may palliate, but it cannot eradicate. The pruning of a plant diseased at its roots may induce temporary increased vitality ; but this is of short duration, and unless the disease can be cured its doom is sealed. “A diseased condition of the nerve itself may be severe, and yet unattended with the torture which is usually the accompaniment of a perversion of the normal molecular action of the nerve. Molecular disturbance is due, in the larger number of instances, to faulty nutrition, either of the centre from which the nerve takes its origin, or of the tissues throughout which its fine terminal ramifications are implanted.” However, it must be remembered that the strongest and most healthy persons by hereditary descent may, through various depressing causes, as worry, anxiety, overdrinking, excessive smoking, malaria, cold, damp, fever, and so on, become the confirmed subjects of neuralgia. When investigating the cause of a neuralgia, our chief aim should be to ascertain, as far as possible, whether it arises from an affection of the nerve alone, or from an acrid or morbid condition of the blood and secretions generally, producing constitutional exhaustion. We should never fail to elicit the family history, and to observe the diathesis and temperament of our patients, for upon the right estimate of these states a

great deal of the success of our treatment will necessarily depend.

It is a rare thing, indeed, for the neurasthenic to be absolutely free from pain. The nature of this pain varies from the most acute to merely abnormal and transient sensations (waving, beating, rolling sensations), in which the ideal and the mental frequently participate.

Nervous exhaustion and abnormal sensations, endless and infinite, run together as though they were bound in double harness.

A Feeling of Profound Exhaustion unaccompanied by Pain.—Dr. Beard writes so happily, clearly, and truly upon this point, that I do not hesitate to quote his words: "Attacks of a sensation of absolute exhaustion, as though the body had not strength to hold together, come on very often in the nervously exhausted. This feeling of exhaustion, though not exactly pain in the usual sense of the word, is yet, in many cases, far worse than pain. These attacks may come on suddenly, without warning, and may suddenly disappear. In the morning one may be able, or feel able, to run for a wager; in the afternoon of the same day, sitting quietly in a chair seems to be an exhausting effort, to which every nerve and bone and muscle seems unequal. The going-to-die feeling is quite common in these cases, and at first causes alarm. It may be experienced either in the day or at night, on going to sleep or on awakening from sleep. Neurasthenic patients cannot depend upon themselves. One day they can do with impunity what on the following day brings about distressing results. At one time they may be able to work hard, take long walks, and use the brain severely; but under the same circumstances, in a few days they find themselves unequal to anything of the kind. One may go for a long time almost reckless in diet, when suddenly an ordinary article of food causes distress. When planning to go upon a journey or to undertake any responsibility of any kind, they cannot tell a day

beforehand whether they will be equal to it ; their strength is liable to drop away from them at any time when it is needed."

Nervous exhaustion is not incompatible with the facial expression of perfect health, but, as I have before stated, this expression is liable to decided to marked and sudden variations.

A man's physical development is no indication whatever of his nervous power, for he may be, from a nervous point of view, as weak as a bed-ridden, hysterical girl. Both in men and women the giving out of the left leg is of frequent occurrence, and the act of gaping and yawning is so pronounced and continuous in some subjects that it becomes positively wearisome to onlookers.

Reflexes.—The reflex of the knee, the ankle, the scrotum, and the elbow are usually exaggerated in nervous exhaustion ; so much so, in fact, that, unless great care be taken, some change in the lateral columns of the cord may be diagnosed. The pupillary reflexes, in like manner, are particularly active, although the ordinary condition of the pupil is that of extreme dilatation. Slight astigmatism is common, and so is asthenopia.

The voice is so frequently affected in nervous exhaustion, particularly in women, that it cannot be passed unnoticed. It is usually referred to the hysterical, which is very absurd, and is another illustration of the too frequent misuse of the term "hysteria," which has unfortunately become far too general. I have seen so many cases of so-called hysterical want of voice, difficulty of swallowing, and vomiting, which could not possibly be called hysterical but for the fact that they occurred in women, and when they were absolutely unattended with any other symptom or sign by which the hysterical state is usually recognized. Reflex irritability of the uterus has nothing whatever to do with these cases in the majority of instances, although uterine medication is too frequently persisted in for months together. Drugs

which are usually administered in hysteria have, in my hands, failed to effect a cure. Faradization applied to the laryngeal muscles, and to the cervical sympathetic, the use of a full and generous diet, healthful outdoor recreation, and the application of a cold-water pad to the throat, sprinkled with turpentine, are the best agents to effect a cure. If the patient be very anæmic the cure may be more easily effected, and possibly be rendered more permanent by the daily use of a pill composed of one grain of the watery extract of aloes and three of reduced iron, with the twentieth of a grain of strychnine. In clerical dysphonia we invariably find a nervous, susceptible, and timorous habit of body, even though the clergyman may be herculean in physique. Laryngeal muscular movements are on the borderland between the purely automatic and the volitional, and that is often the reason why they resist ideational no less than purposive control. The automatic chest movements in these cases are frequently involved.

Nervous Breathing.—Hurried breathing, panting for breath, and difficulty of breathing are often to be found without any organic disease of the lungs, or of the bronchial tubes, or of the circulation. The conditions are doubtless due to temporary inhibition of some of the vagus filaments and exhaustion of the reflex automatic respiratory centres.

A gentleman now under my care suffers from severe attacks of nervous dyspnæa, which, he says, usually come on after an exciting conversation. Graves mentions the case of a man of herculean form, in the prime of life, who suffered intensely from attacks of difficult breathing. He tossed about in bed in a constant state of agitation and restlessness, and yet the respiratory murmur was everywhere distinct, and no *râle* could be heard, except here and there a few bronchitic wheezings. He also suffered from want of sleep, and, though he had but little fever, his debility was extreme. He recovered with extensive blistering, stimulants, and narcotics. Nervous prostration is invari-

ably associated with rapid breathing, either from physical exertion or mental exaltation. This condition is almost as common as nervous irritability of the heart. The physiological relationship of nervous breathing to many mental derangements in connection with nervous exhaustion is of the deepest interest from a purely scientific point of view, and cannot be gone into here.

Asthma and Hay Fever.—This is essentially a nervous affection, a bronchial spasm of nervous origin. It is allied to neuralgia, megrim, and epilepsy. “Dr. Salter says that precursory drowsiness is the commonest of all the premonitory symptoms of asthma. It is the commencement of that particular nervous condition of which the succeeding respiratory phenomena are but the more complete development.” “The periodicity of asthma implies its nervous character; asthma is typically periodic,” and so is tic-doloureux. A peculiar feature of the nervous character of asthma, as well as of other periodical nervous perturbation, is well instanced by Dr. Salter. He says, soon after an attack, the asthmatic may do what he likes with impunity—take cold, eat a heavy supper, anything. But as the time for an attack comes round, woe be to him unless he exercises the most scrupulous care; any indiscretion, any irregularity, and the asthma is on him. Bodily exertion, producing fatigue and exhaustion, are amongst the many exciting causes which produce an attack of asthma. A peculiar feature of asthma is that it may be induced by stimuli applied to remote parts; in these cases the nervous circuit is much longer, and the phenomena of reflection clearer and more conspicuous. An attack of neuralgia, or even epilepsy, may be induced in the same way. The application of cold to the instep has been known to produce an attack of asthma. It is well known that asthma may be induced by conditions which have a disturbing influence upon the nervous system, such as strong mental emotion, the influence of light and dark,

certain odours, as those of tuberose, heliotrope, stored apples, etc., changes of atmospheric electricity, and other less appreciable conditions of the atmosphere (Living).

Laennec gives the history of an asthmatic who, if his night lamp went out, invariably experienced an attack of asthma. Dr. Heberden, in observing that the paroxysms of angina pectoris come on at night, just after the first sleep, says, "It is at this time the incubus, convulsive asthmas, numbness, epilepsy, hypochondriac languors, and other ills justly attributed to the disturbed functions of the nerves, are peculiarly apt either to return or to be aggravated." Strong mental emotions are well-known causes of asthma and epilepsy, as they are of many nervous affections. One common cause of asthma is locality, with which is associated an indescribable something which cannot be well defined. When staying at Bourne Hall, Bournemouth, I met a gentleman who regretted severely that he could not live at his country house in Wales, where he could not breathe; "But in this house," he said, "I enjoy life, for my breathing is perfectly free." The celebrated Dr. Cheyne writes, "All nervous disorders whatsoever, from yawning and stretching up to a mortal fit of apoplexy, seem to me but one continued disorder in the several steps or degrees of it." It is well known that epilepsy and asthma are interchangeable affections. Dr. Salter records the following case:—"The patient was a man about fifty years of age, subject to epilepsy; his fits had certain well-known premonitory symptoms, and occurred with tolerable regularity. On one occasion his medical attendant was sent for in haste, and found him suffering from violent asthma. After this, at the expiration of the accustomed interval, the usual epileptic fit occurred. On several occasions this was repeated, the epileptic seizure being, as it were, supplanted by the asthmatic."

Hay asthma or hay fever is directly and immediately associated with neurasthenia. It is an example of nervous

idiosyncrasy in reference to many external irritants, of which the pollen of certain grasses are the most familiar. Dr. Beard states—and I quite agree with him—"that external irritants can no more excite hay fever than they can excite smallpox or leprosy, unless they strike on a nervous system predisposed ; and one of the most important, indeed the most important element in the predisposition is nervousness, though not always going on to neurasthenia." Hay asthma, sneezing, yawning, and hiccup may be looked upon as "minor explosive nervous actions, supplanting nerve storms of a more serious and definite character." Dr. Prichard writes of them as imperfect attempts to produce epilepsy, or as differing from epilepsy in some, perhaps, trivial modification. A patient of mine suffered from violent paroxysms of sneezing by day, which were replaced by asthma during the night. Dr. Salter notes a similar case where "the darkness of night appeared to bring about the asthmatic transformation, and the tendency to sneeze was restored with the sunlight." In reference to sneezing, yawning, and hiccup, I need scarcely say that they are ordinarily of the most trivial and passing character. Yet, on the other hand, they assume very inordinate proportions, and are no less distressing than they are violent and alarming. Dr. Prichard relates the case of a young girl of twelve, who for nearly three years was subject to fits of violent hiccup, attacking her during sleep by night as well as by day, the paroxysms lasting from ten minutes to an hour. Sneezing and gaping usually set in towards the close, and the paroxysm usually ended in headache.

Heart Palpitation.—"The nervous heart." For centuries before the circulation of the blood became known, when the vessels were supposed to be the carriers of air, the heart was considered to be the most sentient part of a man's body, and every one is only too familiar with the way in which the heart becomes affected by anything which dis-

turbs the feelings, the emotions, and the receptive nerve centres.

The heart has its own special work to do, and will do it well if left alone, but it represents a centre to receive and to distribute sympathy, through its nervous connections, greater than that of any other organ in the body. It is influenced by every form of mental and moral emotion in a degree varying with the nervous state of the individual to whom it belongs, and it is also greatly influenced by the nature and character of the blood which circulates through it. The heart is supplied with nerve force and power through the sympathetic and spinal nerves; its action is held in check by the pneumogastric nerve; but we have nothing to say in this brief article, which is in every sense practical, about the nervous physiology of the heart. The nervous heart presents three typical characteristic features, which are exemplified (1) by the slowness or rapidity of the pulse; (2) by the tension of the pulse; (3) by the regularity or irregularity of the pulse. As a rule, the nervous pulse is characterized by its weakness, softness, and variability, and it will often vary as much as ten, twenty, thirty, or even forty beats during the minute. I am often astonished to find how soft and small the pulse will be in nervous men of large, even herculean frames, and how the blood circulates in such people is to me sometimes a mystery. For some nearly stagnant channels must exist, and this is one of the chief reasons why diffusible and cardiac stimulants are so useful in states of nervous exhaustion. In the nervous heart caused by worry and anxiety, the heart is so irritable, so ill-tempered, so fractious, and so sensitive, that it tumbles about, kicks, starts, and plunges in a manner which becomes exceedingly distressing and almost unbearable. At times the slightest movement of the body will produce this effect, walking upstairs, ascending a hill, reading an article which touches the feelings, or the mere ordinary action of the bowels, or eating or drinking anything which disagrees.

The heart, like the brain, is the creature of habit. If you once let it get out of training and assume vicious propensities, it takes a vast deal of moral persuasion, and something more, to put it right again.

A gentleman patient of mine, who may generally be said to enjoy good health, excepting occasional attacks of exhaustion and severe throbbing pains at the back of the head, tells me that he has suffered from an irregular pulse for many years. Worry and fits of temper always make matters worse. There is no organic disease to be detected. We have nothing here to do with hearts diseased, but only with those hearts which are turbulent and sulky. Dr. Weir Mitchell gives the following interesting case :—"I saw very many years ago a handsome girl of twenty, from Cincinnati, who had spells of apparent death, if I may use such a term. Odours, or the mention of odours, brought on an attack of hystero-epilepsy. Of late the hystero-epilepsy had given place to the 'death spells,' as her friends called them, and it was one of these I provoked. She said to me, 'I am going to have an attack; feel my pulse. In a few minutes I shall be dead.' Her pulse, which just before was about 100, was now racing and quite countless, while the irregularity and violence of the heart action seemed to me inconceivable. With the interest of an hysterical woman in her own performances, she said to me 'Now watch it; you will be amazed.' This certainly was the case. Within a few minutes the pulse began to fall in number, and, as well as I can recall it, in some fifteen minutes was beating only forty. Then a beat would drop out here and there, the pulse meanwhile growing feebler until at last I could neither feel it, nor yet hear the heart. In this state of seeming death, white, still, without breathing or perceptible circulation, this girl lay for from two to four days." This may be said to be an extreme case, but I have seen many such in delicate nervous women, and I have quoted this at length to show

to what an extreme the nervous heart will condescend to go. One of my hospital patients, some years since, suffered from a pulse which was rarely under 160 beats per minute. There was no organic disease of the heart in this young woman (twenty-five years old). Dr. Murchison told me that in his experience these cases were often due to sexual excitability, although the patient may not be hysterical. The administration of digitalis in these cases rarely has any influence, and in this particular case it had no influence whatever. Latent gout, by suppressing the action of the pneumogastric nerve centres, as is well known, gives rise to a troublesome condition of the heart, and so do derangements of the stomach and digestive tract. Flatulent distension is a common factor of irregularity of the heart, but both cause and effect are essentially of nervous origin. Some people suffer greatly from attacks of palpitation of the heart at night, and, apparently from no particular cause, they wake out of their sleep with the heart beating violently, and sometimes in great alarm. I have known such conditions apparently due to taking either tea or coffee during the evening. I have seen the most troublesome states of nervous disorder of the heart from smoking—not from over-smoking in those with whom it agrees, but from slight smoking in those with whom it is known *not* to agree. Functional nervous heart troubles are always of significance, and should be remedied by appropriate diet and treatment. They should never be neglected because the ear fails to elicit abnormal sounds. These nervous troubles of the heart usually yield, and rapidly yield, after the cause has been clearly elicited. The influence of the galvanic current to the cervical sympathetic is often of great service. A carefully regulated diet is very essential, mental quietude, change of air; avoidance for a time of tea, coffee, and sugar, and pastry, is certainly necessary. Concerning drugs, convallaria, digitalis, aconite, assafoetida, and the mixed bromides, with alkali, are the

most useful ; but each case must be treated according to its individual requirements.

Nervous Dyspepsia.—Flatulent indigestion is almost invariably of nervous origin, and is one of the most common forms of indigestion, as I have shown in my writings on Loco-motor Ataxy—severe pains in the stomach, with obstinate vomiting and flatulence, are frequently preataxic signs. I am persuaded that it is scarcely true to call these attacks of pain in the stomach, with sudden flatulent distension of the stomach and bowels, indigestion, for the reason that persons who suffer from “nervous exhaustion” digest their food with the utmost rapidity as a rule ; and I have frequently cured these attacks by making my patients give their stomachs more to do—not only to keep their stomachs frequently occupied, but to keep them constantly occupied.

A gentleman, thirty-seven years of age, consulted me a few months since for severe indigestion, which had resisted the modes of treatment adopted by some of the most eminent of the faculty in this country and upon the Continent. Some physicians told him it was due to suppressed gout ; others feared that some positive disease existed at the pyloric end of the stomach. He was told not to take tea or coffee, wine or spirits, and, above all things, he was never to take anything between his meals. He candidly admitted that he was getting hypochondriacal, and that he was always feeling hungry, but dared not eat. In ten days this gentleman was relatively well. I told him to stuff instead of starve himself, which he was actually doing ; to neglect thinking entirely about that which he thought would agree with him and that which would not agree with him, and to eat biscuits (not sweet) constantly during the day, and to take as well a couple of pints of champagne in the twenty-four hours. He left me in a state of hesitancy, doubt, and despondency ; he returned to me in a week, bright, cheerful, trustful, and full of hope. He said that if it had not been for his wife he never should

have adopted my treatment ; but the change from starving to stuffing had done wonders for him.

As a rule, in nervous exhaustion patients are often relieved by eating, and feel worse when the stomach is empty ; but this is not always so. I have lately seen a patient suffering from nervous exhaustion, who tells me that he becomes utterly prostrate after his mid-day meal for about half an hour. This is perfectly intelligible. The stomach robs his brain of nerve force and blood during the primary act of digestion. But an observer will naturally say, "How can this accord with constant stuffing, which must be continually demanding relays of nervous power?" The answer simply is this : Nervous exhaustion represents nervous instability ; anything which determines the sudden withdrawal of nerve force from the brain and spinal cord to effect the performance of any special function, it matters not whether it be of the mind or of the body, insures a state of exhaustion. The supply is not equal to the suddenness of the demand. The case is totally different, however, where the demand is constant and rhythmical. The supply of nerve force is here maintained with unceasing regularity, and the nervous centres can manufacture sufficient force under these conditions, which will be equal to the demand, or if not equal altogether to the demand, it will be in a measure so.

I have seen cases of severe gastric pain, with jaundice, evidently spasmodic from nervous shock, worry, and anxiety, which yielded immediately to opium, when calomel purging and the strictest dieting have only made the patients worse instead of better.

A gentleman, aged thirty-six, of a literary occupation and of a nervous history, consulted me for the following troubles : very severe neuralgia of the left arm and right leg, constant pain in the stomach, and flatulent distension of the bowels after eating, accompanied with dizziness and pain at the back of the head, which is sometimes very

severe. He says that he can never be quite sure of himself; he suddenly gets tired and breaks out into a profuse perspiration. When starting from home he felt as light as a lark, but after a quarter of an hour, whilst walking along Oxford Street, he felt as though he should collapse altogether. At times he is very depressed and irritable. He was a total abstainer, but finds that a little stimulant does him so much good that he declines to leave it off, quite contrary, however, to the dictates of his conscience. There was marked spinal irritation, and considerable tenderness upon pressure over dorsal spines. The bromide and iodide of potassium with quinine, and constant feeding, cured him.

Miss H——, aged thirty-three, consulted me for severe gastric pain of a neuralgic character. Had been treated for dyspepsia without experiencing any benefit. The attacks came on with wonderful regularity every two months, and seem to have been caused by intense worry. They are preceded by excessive fatigue, exhaustion, and depression. The voice is so weak as to be scarcely audible, and after playing upon the piano for a short time, her fingers give way from fatigue. The attack commences with a feeling of gnawing and burning in the pit of the stomach, and goes on increasing until the pain becomes intolerable. There is great flatulence; sometimes the pain passes off with vomiting. The urine at these times is high coloured and loaded with lithates. The administration of a highly nutritious diet frequently, and the hydrobromic acid with quinine and arsenic, and the use of galvanism, completely cured her.

William E—— was sent to me from the South London Medical Aid Institute by Dr. Day, suffering from obscure nervous symptoms—frontal headache, giddiness, noises in the ears like the puffing of a steam-engine. Weakness and exhaustion comes on quite suddenly, and he cannot account for it. He has attacks of temporary stiffness at

the back of the head and neck, and when he turns his head he feels as though he were going to fall down. He notices that after the attacks of stiffness at the back of the head, he becomes suddenly and enormously distended with wind. This leads him to the conclusion that all his ailments must be due to indigestion. His appetite at any time is enormous. When he feels weak, he is afraid to cross the road. Constipation is troublesome and makes him worse. When the illness first came on, he wanted to urinate every ten minutes. Mouth and throat are very dry. The speech is sometimes thick and defective. At times he yawns continuously, and feels tired, as though he had been working for a fortnight, and yet he is unable to sleep when he goes to bed. The reflexes were normal, and he could stand and walk with the eyes closed. Iodide and bromide of potassium given continuously for three months relieved him of all his symptoms. There is nothing that relieved the flatulence so much as constantly feeding the stomach with biscuits. He said that he was born by the sea, but when he went to the seaside he always became excessively nervous. No better proof of the nervous origin of many forms of dyspepsia can be found than the ready way in which they yield to tonic remedies, such as arsenic, nux vomica, strychnia, etc.

Biliousness.—The man or woman who had never been bilious in their own estimation would indeed be a curiosity, and that ever-offending organ, the liver, has so much to answer for according to general report, that it would be well for man's happiness and comfort if it could be severed altogether from his existence. The doctrine of biliousness has been, in a great measure, abandoned by those who study scientific medicine, although it still holds its ground with the general public. A lady of good judgment, some sixty years of age, who had, nearly all her life, held the idea that her ailments were due to biliousness, and who had dosed herself accordingly with

all kinds of antibilious drugs, told me that she had come to the conclusion that true biliousness was not so common as she had supposed, and she now felt convinced that the bilious remedies which she had so constantly employed had been the result of a lifelong error. Formerly, when her bilious attacks came on, she starved and purged ; now, she feeds and stimulates, with the very best results. No doubt bile does get into the stomach occasionally, and when there it is an offending element, and gives rise to many unpleasant sensations. Some of the worst forms of bilious vomiting which we meet with occur in consumptive patients, who are not bilious but exhausted. This is purely the result of reflex nervous action. There is a condition of temporary paralysis of the gall bladder which I am quite certain is common enough, although it seems to have passed quite unrecognized. It is due to a depressed state of the solar plexus, and gives rise to retained bile and nervous sensations in the stomach, and head. This retained bile becomes black, as I have proved by post-mortem evidence. It is under such circumstances as these that gall stones are first formed, and the humouristic theory originated when medical philosophy was based on the doctrine of the "four cardinal humours" of man's body, the blood, yellow-bile, black bile, and phlegm, and the "four elementary qualities," hot and cold, moist and dry.

Bladder Irritability.—In cases of spinal irritation, and in commencing disease of the spinal cord, irritability of the bladder may be almost the only symptom. There are some persons to whom their bladders and urinary apparatus are a constant source of trouble and annoyance, just as to other persons their lungs and their respiratory apparatus give unceasing anxiety. I have known persons who, at certain seasons of the year, would suffer from neuralgic pains about the bladder and an irritable state of the urinary apparatus in general, just in the same way that other persons at the same season of the year suffer from

catarrh of the bronchial tubes, from hay asthma, from gout, or from ague ; and, again, just in the same way that other neuralgias and nervous affections would be produced by malaria, by worry, by anxiety, by undue exposure to cold, by sudden change of temperature, by undue excitement, or by any cause that prostrates the vital power, so, in a similar manner and from the same causes, do we find nervous affections of the bladder to be induced. Sometimes the bladder will be so irritable that the patient will be constantly desirous to void urine, whilst at other times the bladder will be so inactive, and its walls become so distended, that the patient will be unable to empty the bladder by voluntary self-effort. Nervous irritability and neuralgias of the bladder are frequently a source of the utmost misery, agony, and wretchedness in both men, women, and children. Although an irritable bladder, with frequent desire to micturate, and with full power to accomplish the act, is not a serious matter, yet when the same irritable symptoms are accompanied with dribbling of urine, and with inability to pass water when the effort is made to do so, and more particularly when the flow of urine from the bladder is more passive than active (that is to say, when the patient is unable to arrest the flow when it has once commenced, or to effect by effort the complete emptying of the bladder), we must never forget that symptoms and signs such as these are of grave importance, and that we must then turn our attention at once from the bladder to the nervous centres—either to the brain or spinal cord, where, in all probability, by careful examination, we shall find some degenerative changes commencing, which by other mere casual observation would remain undetected. It not unfrequently happens that lancinating pains in the perineum, along the course of the urethra, and even at the end of the penis, attended with stammering of the bladder, frequent desire to pass water, and inability through spasm to do so, are indicative of commencing loco-motor

ataxy ; whilst, on the other hand, catarrh and paralysis of the bladder, with incontinence, come on only at the latest stage of the disease. A gentleman was under my care who suffered from loco-motor ataxy, and who, fifteen years before, was treated with caustics for stricture and other bladder troubles, which I feel sure were of spinal origin ; and in the case of another gentleman who is under my care, suffering from loco-motor ataxy (a medical man), he declares that the bladder troubles were the first signs of his disease.

Diabetes.—If we consider diabetes from its many and varying points of view, we shall, I think, be led to the conclusion that it originates from a vaso-motor paralysis of the vessels going to the liver. Injury to the floor of the fourth ventricle of the brain and the medulla oblongata, from which the vaso-motor nerves of the liver arise, cause the formation of sugar in the blood, and afterwards in the urine. This has been proved experimentally by Schiff and by Pavy, and we have good reason to conclude that this same paralytic action of the vessels going to the liver can be produced by reflex action from a depressed and exhausted state of the sympathetic nerves and their ganglia during any part of their course. When the nervous system is in a high state of excitability, the special function of any individual set of nerves may take upon itself increased action, owing to the depressed state of other sets of nerves ; in fact, their correlating integrity is destroyed. It is a clinical fact of considerable value that, in nine cases out of ten of neurasthenia, the urine is invariably far beyond its normal density. I frequently find that it ranges from 25 to 30 ; sometimes it may contain a trace of sugar, and I am often surprised that it does not contain a considerable quantity, but the other clinical features of diabetes are invariably absent. There can be no doubt, however, that in neurasthenia we find many of the elements which are, in some constitutions, predisposing causes to diabetes.

Absolute physical and mental rest, as it often effects a cure, is an absolute proof of the neurosal nature of these cases.

Railway Travelling.—There are some people who can try their constitutions by excess in many ways without feeling any bad effects therefrom, but this statement is not applicable to the majority. I am quite sure that railway travelling, especially if prolonged, is to some people a source of great distress and discomfort, and productive of an exhausted state of the brain and nervous system. I see some of the most lamentable results from travelling in patients suffering from nervous disease, who have been ill advised to try the effects of change at some of the continental spas. I never see any good result. I have known patients, who by rest, and care, and proper treatment at home would in all probability have lived many years, and possibly have been cured, return from continental travelling and sea voyages very much worse for the change they were advised to seek ; not only worse, but hopelessly invalided. In some stages of nervous disease, even a short journey is productive of the most serious and fatal consequences. I was consulted two years ago by the relatives of a young lady eighteen years of age. She was brought to London from the West of England, to seek advice on account of some obscure symptoms which were referable to the brain, and during the journey she felt sick and faint and giddy. A few days after her arrival inflammation of the brain set in, and in the course of a fortnight she was dead. The shaking, the jolting, and the journey of railway travelling are often productive of extreme fatigue, headache, numbness, creeping sensations, and twitching, which are indicative of exhaustion. Some persons whilst travelling are full of dread, and vague fancies, and evil forebodings ; anticipating something dreadful to happen to them before they arrive at the end of their journey. I have numerous cases recorded of this kind of bodily dread. A gentleman of

herculean stature told me this morning that it was impossible for him to ride in a train. He said the other day, "I was riding in a carriage alone, and no one can tell the agony which I endured for twenty minutes ; but when the train stopped the feeling had vanished." I asked him to describe the feeling to me, but he could not. He had no actual fear, but it was worse than death ; it was too dreadful to describe.

Worry.—No one who has experienced the full meaning of the term "worry," and the disastrous and baneful blasting influence which worry has upon a man's mental, moral, and physical nature, can wonder at the commonly accepted saying, "Worry kills."

"A hell hound that doth hunt us all to death ;
That dog that hath his teeth before his eyes,
To worry lambs and lap their gentle blood."

The chief effect of worry is exhaustion ; "brain and nerve wreckage" is the result. Hurry, worry, and waste are characteristic of the age in which we live ; breathless haste, eager anxiety, and an excessive expenditure of energy are the outcome of modern activity. Worry exercises its influence upon man with a demon-like subtlety : it destroys his elasticity of gait ; it contracts and narrows his normal breadth of intellect ; it creates an atmosphere of misery in which all things are contorted ; it robs life of all its brightness, its pleasures, and its charms. Worry creates a perpetual night, a void, a chaos, a world moistened with perpetual dew, upon which the sun of hope never shines. Worry once rooted in its appropriate soil grows with fearful rapidity ; it seems to destroy all the good and noble attributes of man's nature, leaving him fearful, fretful, jealous, sordid, mean, and selfish. He expects every form of perfection in others, when he has lost every vestige of it in himself. His bodily functions become impaired, some extinguished ; the appetite fails. Sleep will not even come by seeking, and if it does come, it is a mere dozing instead of

sleep ; it is not rest. It does not bring refreshment with the morning's light ; the first waking moments are clouded by some overhanging fear, and so passes life in dread weariness of existence. Statesmen, City men, professional men, and, in fact, all classes of society—men, women and children—rarely escape the pangs of worry in some form or the other, from vexation and annoyance to absolute torment. Worry is a factor of nervous exhaustion, and the man or woman suffering from nervous exhaustion worries on account of their worry. In other words, they magnify trifles until they really assume proportions of importance ; in fact, they make mountains of mole-hills. There is a profound weariness of doing anything, either good, bad, or indifferent. They are just as irresolute as they are incapable. Friends are lost by careless inattention and indifference. Sympathy receives no reciprocity. They cannot be led, guided, or driven, and until a change comes over the spirit of their dream for good or for evil, they may be likened to a dismayed ship, without steering gear in the midst of a storm, surrounded by breakers, and tossed about by a seething, foaming, merciless sea. Pitiably indeed are such, and such demand our pity.

CHAPTER V.

The Heredity of Nervous Constitutions which are especially liable to Exhaustion and Fatigue.

WERE it possible for us to take a glance at the constitution of man, as man was originally made, we should in all probability find that, in relation to mere anatomical details, there was no essential difference between him and the man existing in the nineteenth century.

We might even go farther than this, and, by the most able chemical investigation analyze tissue after tissue without finding the slightest variation or change. We might bring the most powerful and most modern appliances to our aid, and yet, as far as human research is concerned, we should be unable to reveal any ultimate difference, which could enable us to arrive at a conclusive estimate as to the reason why we should suffer from diseases which never existed in the body of primitive man. Schlegel, speaking of the unanimous testimony of ancient tradition respecting the longevity of men in the first stages of the world, says—

“By a simpler course of life and diet than the very artificial, unnatural, and over-refined modes we follow, there are, even at the present day, instances of longevity far beyond the ordinary duration of human life. In India it is by no means uncommon to meet with men, especially in the Brahminical caste, more than a hundred years of age, and in the enjoyment of a robust and even generative vigour of constitution. In the labouring classes of Russia,

whose mode of living is so simple, there are examples of men living to more than a hundred or a hundred and twenty, and even a hundred and fifty years of age. And although these instances form but rare exceptions, they are less uncommon there, than in other European countries. There are even remarkable cases of old men who, after the entire loss of their teeth, have gained a complete new set, as if their constitution had received a new sap of life, and a principle of second growth. What in the present physical degeneracy of mankind forms but a rare exception, may originally have been the ordinary measure of human life." *

And it would seem natural enough by inference to conclude, that in the earliest ages it was rather the rule than the exception that man should leave this world by no other means than by what is universally known as decay of nature or by violence.

If it be so—and this we see no reason to doubt—it behoves us to look into and inquire in what consist those changes which, we must admit, are in the majority of instances inappreciable, but which have subjected us to premature death and disease. Is it possible that the modes of living which have raised us, so to speak, to the heights of civilization, have carried with them those aids to early degenerative changes which we meet with in everyday life, and which, it is only fair to assume, have resulted from an hereditary transmission, which has taken its origin from some cause, and at some period in the history of man, of which we are bound to confess our ignorance, but which makes itself manifest in many ways in those multifarious conditions of disease and decline which assail us on all hands? In his address to the members of the Medical Association, August 9th, 1873, the late Dr. Parkes said—

"During this time we have learnt partly to know the great class of degenerations with its two divisions, viz. :

* Schlegel's "Philosophy of History."

Degenerations which are simply the result of age, *i.e.* of the loss of the peculiar formative force which first builds up, then maintains, and then finally dies, and leaves behind it a tissue, worn out, effete, and useless ; and degenerations which are the slow result of some excessively slight but constant failure in nutrition, fibroid, fatty and atheromatous changes and wastings, especially of muscular fibres, but also of gland-cells and mucous membrane, and nerves come in to complicate the acuter maladies, and largely to increase their mortality. It must be confessed that, while they account oftentimes for failure in treatment, the chance of degeneration being present in middle-aged patients is a source of great embarrassment in prognosis ; except when attacking the kidneys and muscular tissue, they are diagnosed with great difficulty, and slow degenerations of the alimentary mucous membrane, or of the nervous system, are among the most puzzling of maladies. In the means of detecting the presence, and estimating the amount of these degenerations, we have still much to learn, and no greater benefit could be conferred on the human race than a perfect analysis of these causes, and a recognition of how they may be avoided.*

However, let this be as it may, we must not ignore the fact that, from the earliest writers on medicine, we find certain conditions of both mind and body alien to what might be called the standard of health, and which might be rightly termed disease. Therefore, it must be taken for granted that, however rude and uncultivated were the means placed at their disposal to aid in diagnosis, and however simple may have been the primitive type of disease, still it did exist independently of mere senile change. Then it comes to be a question in what manner, and in what way, either in origin, type, or formation, these alterations have been brought about, which make the classes of disease to differ, both in character and nature,

* Professor Parkes, "On Degeneration."

from those incidental to our forefathers. It is, nevertheless, true that a simple pyrexia, or fever, is made manifest by the same signs and symptoms which were laid down by Galen; yet the treatment then applicable is now rightly decried, for he supposed that diseases depended on similar qualities, and were to be counteracted by opposite medication, as, for example, we were to meet a hot disease by a cold remedy. This, we must admit, is somewhat different to the treatment now usually adopted; and for what reason? Because, we say, that disease is altered in type. Yet upon investigation, we are much inclined to doubt that this is really the fact. On the contrary, we are led to believe that some alteration has taken place, either by hereditary development, or through surrounding influences, which has produced a molecular alteration in the fluids or tissues of the body, resulting in a change of diathesis or constitution which makes an inflammation to differ in degree and in intensity. This leads us at once to consider whether we are not right in talking of constitution in reference to disease, and whether the *vox populi* has not some show of reason when the family doctor is preferred, because he is said to know the constitution. It is not more than some thirty years ago, when men of the highest eminence considered it all-important in diagnosis to find out what is called the hereditary tendency or constitutional diathesis, and to base their plan of treatment upon the information elicited. But of late years this has in some degree fallen into disuse, and the so-called nutritive or stimulant treatment has become the fashion. Dr. Alison recognized the increased necessity for stimulants, as a consequence of the changes he observed in the character of diseases. Dr. Todd, on the other hand, who practised the stimulant treatment to a great extent, did so as a matter of routine, rather than admitting its necessity on account of the altered type of disease; and it would therefore appear that Dr. Todd had an idea similar to the foregoing statements of the author in regarding

the change as being one rather of constitution than of type.*

That the stimulant treatment has its advantages, no one can doubt, and in the main, perhaps, one might say that it is correct, the more specially where we deal with those forms of disease which have to be treated upon what is called the expectant plan. If, for instance, we have under our care a fever, which we know runs a definite course, we can, by careful and almost hourly examination, support the patient under the degenerative changes which must necessarily arise. And in such a case as this it will not perhaps benefit our patient much to ascertain whether or not he is, either by hereditary transmission or by acquisition, the subject of gout or scrofula. But at the same time it might be all-important to be made acquainted with what we understand to be his peculiar constitutional habit of body.

For instance, he may not be the subject directly of any hereditary taint, yet at the same time he may be deficient in that tonicness of mind and body which is so often the result of the too frequent use of stimulants, of over-mental work, or of some other vitiating cause. Here, then, we have open to us two different constitutional conditions—the one acquired, the other hereditary; without an acquaintance with which, it is to be maintained that the physician is powerless to combat the ravages of disease. And a thorough knowledge of this condition will be found so all-important, in the treatment of those forms of disease to which this paper especially refers, that it would be useless attempting to make the subject thoroughly clear, unless we explain, with some degree of accuracy and precision, what is generally understood, from a medical point of view, by the term “constitution.”

Dr. Aitken says, in his “Practice of Medicine,” that it appears evident that the human body is capable, from

* Dr. Todd, “Clinical Medicine,” 1862.

causes known as well as unknown to us, of undergoing various alterations, as regards not only its physical, but also what has been termed its medical constitution. The following lucid account of hereditary constitutional disease, given by Sir James Paget in the discussion on cancer, at the Pathological Society, will here be read with interest :—

“The transmission of cancer accords with the transmission of all other hereditary constitutional diseases—with gout, with syphilis, with tuberculosis, with scrofula ; for here I may mention that I think it will be well if we study the whole matter of the pathology of cancer, not by its accordance with certain verbal definitions of our own, but in its relations with those diseases which we are all of us ready to admit to be either constitutional or local. And I assume that we are all of us quite ready to admit that gout and syphilis, and tuberculosis and scrofula, are constitutional diseases. I say, then, the transmission of cancer by inheritance accords perfectly with what we see in them, not with what we see in local diseases. The gout of the parent may appear in all the possible various textures of his offspring, never, it may be, in the great toe of one of them, but in the joint of one, in the skin of another, the bronchial tubes of another, the pulmonary texture of another. Of all the variety of diseases which we class under the general name of gout, the whole may be derived from one parent who may have gout in what we regard as its typical form. And I need not here speak of the varieties of form in which tuberculosis is propagated by inheritance, or scrofula, or any of those other which we regard as constitutional diseases ; and this fact, I repeat, in regard to the transmission of a disease by inheritance is so all-important in respect of what we call its origin, that I think it is to be regretted if we deviate in the least from holding that the constitutional element of the origin of cancer is one of the most important and considerable things that we have to study. . . . When after an injury there is a deviation from

ordinary changes, we seldom or never entertain a question but that the deviation is due to some constitutional defect in the person in whom it occurs. We see a wrenched knee-joint which does not recover after the ordinary fashion, which swells and remains hot, with thickening of the synovial membranes, perhaps with the formation of abscess. We are as sure as of anything in pathology that that is because the person is scrofulous. We see an injury of a bone, and it becomes the seat of tuberculous deposit. We understand that that is because the person to whom the injury has happened is one with a constitutional tuberculosis. We see an injury done to a foot, and it becomes the seat of a gouty inflammation; of another done to joint or bone, and it becomes the seat of syphilitic disease. In all of these cases our pathology is as sure as any piece of pathology we have; it may be erroneous, but at least it is as certain as any other knowledge that we have, that deviation from the ordinary method of change after injury is because of some constitutional peculiarity in the person upon whom the injury has been inflicted."*

It will be seen from what has just been stated, that we each individually possess a something transmitted from our parents, which can receive with all truthfulness the term hereditary constitution. By this must be understood that diathetic habitude, or cachexy, which is included under one of the four conditions—tubercle, scrofula, gout, or cancer. Yet even here it must not be forgotten that what one understands by the term "delicate constitution," and which does not come under any special dyscrasy or ill habit of body, can be inherited by transmission. Again, the parents, either one or both, might be of ill habit of body from intemperate or vicious courses, and the offspring might be delicate or ill-natured, without any special dyscrasy. But yet, more important still, we must not forget the possibility, which amounts to a conceivable reality, that the present

* "Discussion on Cancer," *Lancet*, March 21st, 1876.

generation does suffer from a constitutional ill habit of body, which has never yet received a definition—the result in all probability of the commingling of constitutional cachexies existing in the bloods of our progenitors.

To make this clear, we will take by way of example a man of mature years, apparently healthy. All the organs, secretive and eliminative, shall be doing their normal amount of work. He shall not be suffering from any mental anxiety or external depressing agency. Yet he will come to the physician complaining of great weariness upon slight exertion—of palpitation of the heart with disordered bowels upon the slightest mental emotion—headache on rising in the morning, and a feeling of tiredness unrelieved by the night's rest. There may or may not be want of appetite as well as distaste for society, yet there is a total incapability of application to any especial object—in fact, a general want of "tone" throughout the body. Now, upon the most minute and careful investigation, it is often found that the man may be sound in every sense of the word. Still, upon examination into his family history, we shall in all probability discover that he has descended from an unhealthy stock. The hereditary taint on the father's side might have been that of gout, and on the mother's that of tubercle. And we have in the son a condition of constitution, by hereditary transmission, partaking of the characteristics of the father on the one hand, and of the mother on the other, but which in him is nothing more than what is generally understood to be a weak state of health. The more one studies what might justly be called the natural laws, which govern the transmission of diseased states from generation to generation, the less likely one is to look upon the foregoing as a mere visionary conclusion.

Then in hereditary transmission, we have to consider what evidence is afforded to us, by which we are assured that constitutional genesis of an essentially congenital type is an established fact. A moment's consideration will

without difficulty solve the problem. Granted that the ovum becomes impregnated with the spermatic fluid, by which process of fecundation it does not lose its original condition, it yet, however, takes to itself a diseased life which in process of time differentiates into the several organs of the foetal body. That this is really the case is an undeniable fact, and it is brought about by a vital agency whose power is made manifest, but of whose modes of working we must plead ignorance.

It is surprising to find with what method and mathematical precision this outcome of heterologous growth is maintained and carried on, until maturity becomes complete. And it would be absurd incredulity to question the fact that the primary sperm-cell of the male, and also the ovular cell of the female, did not each carry with them their own inherent and distinguishing constitutional characteristics. This is fully exemplified in every possible way. That "like engenders like" is an admitted axiom, and demonstrated no less in race than in species, both in mental attributes and in bodily conformation; even more than this, we find it in mere habit and character.

Dr. Carpenter, in his work on "Mental Physiology," says—

"In particular, it is to be noted that while the more general characters are shared by both parents, the more special commonly belong to one only." *

He further says—

"A great deal of discussion has taken place as to whether the male or the female parent exerts the greater influence over the character of the offspring; and while experience does not yet justify any definite conclusion on the point, the question seems to have been entirely ignored, whether the union of two different natures may not produce—as in the combination of an acid and a base—a resultant dissimilar to either of them.

* Carpenter's "Mental Physiology."

"This much, however, may be confidently affirmed, that where *general constitutional taints*, that is to say, *abnormal* habitudes of nutrition, have been acquired, these tend to propagate themselves hereditarily; and that they do so with the most certainty when *both* parents partake of them. It may also be affirmed that every repetition of such transmission tends to increase the mischief; so that by 'breeding in and in,' the injurious external conditions remaining the same, a very slight original departure from healthy nutrition may become intensified, in successive generations, into a most serious abnormality."

Thus, it seems indisputable that we are the subjects of hereditary physical and mental conformations. There are also hereditary conditions which cannot be called constitutional. For instance, the father might have a clubbed foot, or a webbed hand, and this might be transmitted to the offspring. Or, whilst bearing child, the mother might be so influenced by some external object, producing such shock to the nervous system, that the visual effect is not only impressed upon the mind, but is transferred to the fœtus *in utero*. This is an inherited abnormality in the offspring, which cannot be called constitutional.*

The line can, and must be, drawn between transmission by inheritance of mere abnormalities on the one hand, and of disease on the other; and the latter alone can claim to be considered as a constitutional condition.

At all events, this is the accepted fact; and yet upon consideration we do not feel inclined to rest here, and the common phrase in reference to constitution must not be lost sight of. For instance, it is often said, "What a good robust constitution So-and-so has!" "Yes," is the answer, "and so had his father before him." Surely this is also inherited, and quite as much so as the constitution of So-and-so, who is dying of consumption, of which disease his father died before him, and the one is as equally due to a

* Watson's "Practice of Medicine," p. 117.

blood state as the other. Although we do not wish to enter into a lengthened detail of hereditary psychoses, or conditions of mind, either natural or abnormal, still the idea presents itself with a practical bearing, which warrants the conclusion that "constitution," whatever it may mean, is made up not merely of blood or tissue elements, but that also these must be taken in relation with those mental states and nerve forces which play so important and vital a part in man's entity and being.

If the morbid condition which is known as gout, consumption, or cancer, exists by transmission in the blood, it is quite possible that it should, and it often does, remain quiescent throughout the lifetime of a whole generation, but it develops itself with tenfold violence in the succeeding descendants. Here we naturally ask ourselves the question: What agency can be at work to prevent the development of so rapidly destroying and fatal a disease as consumption—the seeds of which, we feel assured, exist in the constitution? It is only by a knowledge of the working of the laws which govern the formative processes of nutrition, and maintain the standard tonicity of health, that we can explain this problem. How often does it come within our daily practice, to be called in by the parent to treat a child dying of consumption, when the parents themselves have always enjoyed robust health, but upon inquiry it is found that one or both of the grandparents have died comparatively young from the same disease!

Again, how often do we find persons come to us for treatment, whose condition previously has been that of perfect health, but whom we now find to be suffering from rapidly spreading tubercle, and whose children have died young, and whose family history shows conclusive evidence of consumptive taint. There are instances on record where the parents have lived to a ripe old age, though all of their children have died from cancer—not of the same, but of different localizations. Perhaps, however, with cancer, as

differing from gout and tubercle, we are right in affirming that it does not as a rule remain latent in the constitution through a generation, but rather develops itself in a most marked manner in succeeding offspring. We quote again from Sir James Paget :

“A lady died with cancer of the stomach ; one of her daughters died with cancer of the stomach ; another died with cancer of the breast ; and, of her grandchildren, two died with cancer of the breast, two of cancer of the uterus, one of cancer of the bladder, one of cancer of the axillary glands, one of cancer of the stomach, and one of cancer of the rectus.” *

We thus feel that our knowledge of the nature and propagation of these morbid products is, to say the least of it, attended with some amount of obscurity ; and more than this, the manner of their transmission and seat of location is at the same time, to a certain degree, matter for conjecture.

For a definite morbid material to be constitutional, it must exist not only in the blood, but in the tissues and the fluids throughout the body ; and although, as before stated, gout, cancer, and scrofula are blood diseases, it would be wrong to conclude from this that the *materies morbi* existed in the blood, and in it alone. If we did so, we should be less likely to account for hereditary transmission, because both the spermatic fluid and ovum must be said to be free from blood ; still, in the primordial germ, it must be allowed, does exist that inconceivable something which grows as tissue grows, and pervades all. Apart from any absolutely recognized dyscrasy, there is yet another constitutional condition, in which appear to be signally manifest those properties or qualities which go to make up by hereditary descent the nervous temperament, and in which we, in the majority of instances, find that which is commonly called an “ill-conditioned habit of body.” And here the mind does, to a certain extent, most undoubtedly participate in

* “ Discussion on Cancer,” *Lancet*, March 21st, 1876.

the diseased state, in a direct ratio with the bodily conformation or physical development.

Dr. Carpenter truly affirms that "breeding in and in" leads in successive generations to a most serious abnormality, as exemplified in cretinism and idiocy. Also in those ill-assorted marriages where there is great disparity of age, we see the evil results in the ill-natured offspring, deficient alike in mental as in physical power. I look upon the constitutional condition here in the same light as I do upon that which is engendered from parent to offspring, when the former have been given to the excessive use of alcoholic liquors. In each case, there is exhibited the transmission of that imperfection of nutrition which fails to give to the germ its true formative capacity, and the result of this is exemplified in all classes of society, from the street arab of St. Giles to the noble of St. James.

From an analysis of a very large number of cases, I am perfectly sure we can find a cause for the majority of illnesses in that class of disease which is especially marked out as nervous or neurotic. And I am much inclined to think that in an ill-assorted marriage—say, where the husband has passed the years of maturity, and the wife is still in the prime of womanhood—there will be the union in the offspring of an ill-balanced nervous temperament, not only physically but mentally. And here I will set aside, for the time, all consideration of what might be the especial constitutional attributes of either of the parents. Take it for granted that at the time of marriage they were both in what goes by the name of good health, yet there can be no doubt, when we consider the laws of senile degeneration, that the male germs, which partake of the father, will carry with them to the formation of the embryo, and thence to the child, a constitutional condition, which will develop, if not into actual disease, at least into a state of nervous weakness, as evidenced in that want of healthy vigour so strikingly delineated in the epileptic, the hysteric, the

morose, the melancholic, and the imbecile. Mr. Galton tells us that—

“The bodily and mental condition of every man are, in part, the result of his own voluntary and bygone acts; but experience teaches us that they are also shaped by two other agencies, for neither of which he is responsible; the one, the constitutional peculiarities transmitted to him by inheritance, and the other, the various circumstances to which he has been perforce subjected, especially in early life.” *

Dr. Laycock's words, in his “Lectures on Diseases of Organs and Tissues as influenced by the Nervous System,” bear directly upon this subject of ill-assorted or unadvisable marriages. He says—

“The hereditary tendencies to diathetic diseases and degenerations defined and fixed on an anatomical basis, are more easily comprehended when we remember that it is the regulative principle, as *vis nervosa*, which, in animals endowed with a nervous system, must be operative on the sperm and germ cells. Now a regulative energy manifested as the “*nisus formativus*” is the special property of these minute portions of matter, and consequently it must be by a concentration of that energy, as *vis nervosa* on the genetic glands, that the peculiar property is supplied. If, therefore, the innervation be defective in regard to these glands, the regulative or evolutionary power will be defective. It is thus I explain how degenerations of structure and defects of function and form take place from deficient *vis nervosa* in the parents; for in these sperm-cells and germ-cells, as in other tissues, the law of degeneration is retrocession to a lower type. The nature and results of that defect in brain nutrition upon which hereditary insanity depends, is a striking illustration of this law of hereditary disease and defect; it is the lower or animal appetites and instincts which crop out in hereditary insanity.” †

* “Hereditary Improvement,” *Fraser*, Jan., 1873.

† “Lectures on Diseases,” *Medical Times and Gazette*, March 28th, 1871.

So well known and so patent were the evil results of ill-assorted marriages, even in the time of Socrates, that Plato in his "Ideal Republic," after speaking of the good results to be attained by breeding together the best horses, the best dogs, birds, etc., says that marriages should be arranged by the rulers, so that people should only marry when in the prime of life, and that the best men should marry the best women.*

In a state of perfect health, a condition, I fear, rarely or never to be found in our generation, there will be seen that complete balance or equilibrium, so to speak, between mind and body, that they both act and react upon each other with due and only due relative power, which is guided by those vital or formative laws which tend to give man pre-eminence among the races of living creatures. It is well known that some members of the purely physical school consider the mind to be omniscient, and underrate, indeed almost disregard, the influence of the body upon it altogether. But this cannot be the opinion of the clinical observer of diseased states, or of those who study the physiological anatomy of the, even yet imperfectly known, nervous system.

If what we understand by mind, namely feeling, will, and thought, is immediately connected with and forms part of our physical state, it must be with that portion of the nervous system which is called brain. And more than this—we know full well that the brain substance can be divided not only into white and grey matter, but into centres, where motor force is generated, and into divisions, wherein are located foci for the generation of the separate intellectual faculties. We are willing to admit that in the cells of the cerebral hemispheres rests that nidus, or *tabula rasa* if you will, wherein dwells our living consciousness. As physiologists, we know that if we will an act and perform it, the performance is secondary to and subsequent upon

* "Republic," Book v.

the willing. Hence it is only fair, upon purely materialistic grounds, to infer that the cells, in which we choose to say our ideas are generated, are connected with those other cells to which the ideas are propagated, and from whence emanates the motor force which wills the performance of a voluntary act.

In Professor Max Müller's second lecture on Mr. Darwin's "Philosophy of Language," delivered at the Royal Institution, March, 1873, we find the following:—

"The new philosophy, priding itself, as all philosophies have done, on its positive character, professed to despise the endless argumentations of the schools, and to appeal for evidence to matter of fact only. Our mind, whether consisting of material impressions or intellectual concepts, was now to be submitted to the dissecting-knife and the microscope. We were shown the nervous tubes, afferent and efferent, through which the shocks from without pass on to the sensitive and motive cells; the commissural tubes holding these cells together were laid bare before us; the exact place in the brain was pointed out where the messages from without were delivered, and it seemed as if nothing were wanting but a more powerful lens to enable us to see with our own eyes, how in the workshop of the brain, as in a photographic apparatus, the pictures of the senses and the ideas of the intellect were being turned out in endless variety."

I do not think that any microscopist, with the most determined materialistic views, could ever conceive so futile an idea as that which Mr. Max Müller seeks to convey to us in the ironical passage just quoted. Yet as clinical observers of psychological changes, we do not feel inclined to give way to the metaphysicist altogether—the more especially when we have almost daily evidence, in diseased parts of the brain, of pathological changes producing psychological effects. Alterations, in both mind and body, can be traced to disease of those parts of the brain sub-

stance which, as before stated, refer, the one to mind, the other to volition.

In a practical manner this can be readily demonstrated.

1. A man suddenly loses both motion and sensation, in all parts of the body from the shoulders or neck downwards, yet his intellect and reasoning power remain clear, although he is unable to move himself in the least degree. Here we diagnose an effusion of blood to be pressing upon those parts of the brain which originate motor force, but the hemispherical or intellectual brain is unaffected.

He wills to move, but is unable. Yet he will reason upon the most abstruse subjects with perfect clearness and sense. In this case, the physical or bodily power is lost, the mental or psychic power is retained.

2. A man will fall, as though he were dead—void of consciousness, sensation, and motion. "Apoplexy."

Here we know that blood has been effused into the hemispheres of the brain, breaking up those cells which convey the mental force to the cells which originate the physical force. In this case, both voluntary power of the body as well as of the mind is lost.

3. A man will be seized with confusion of ideas, thickness of speech, misplacement of words, total loss of memory, and with partial loss of sensation and motion all over the body.

We shall soon see, in this case, a more or less profound lethargy, with uni- or bi-lateral convulsive seizures ; and here we diagnose an effusion of blood upon, and over, that part of the hemispheres of the brain wherein, as we said before, are located the foci of the separate intellectual faculties. There is, however, no disintegration of brain substance, but merely a molecular disturbance from pressure ; and although this produces paresis, both psychical and physical, yet we are led to believe that it is only the peripheral cells of the cerebral hemispheres which are really implicated, and that the deeper parts are affected only by the influence of contiguity.

In the second case, let it be remembered, there is a breaking up of the psychical elements of the brain, with profound coma. Now we will analyze both the mental state and bodily condition of case No. 3. He appears quite unconscious of surrounding objects—the special senses of sight and hearing are, as far as can be judged, lost. The finger may be placed in close contiguity to the eyeball without his perceiving it; yet when it touches the eye, not only will the lid close, but he will voluntarily endeavour to move his head from the position it occupies—showing evidently that the mind is in subjective, if not in objective, action. If the brow be tickled, he will raise the arm to remove the offending cause; and if the leg be pinched, he will, by a voluntary effort, try to move it out of the way. Yet his perceptive powers are absent—the mind is lost to the outer world, except through the medium of touch; but the actions before referred to are performed by a voluntary effort, and consequently not the result of an automatic or of a reflex act.

I have often felt the deepest interest in knowing whether or not, under such conditions as those just stated, the patients really suffer from pain, and if they are conscious of their condition. In case No. 2 I feel sure that such could not be so, but in case No. 3 I think it is. These cases show quite clearly, although roughly, that this especial nerve matter of the hemispheres of the brain is the source from which emanate those essential manifestations known collectively as mind, with all its attributes.

I have seen an ill-nurtured brain in phthisis, as before noted, producing temporary acute mania, without inflammation of its substance or its coverings. In such a case as this, the effect was the result of some perturbed action in the nervous schema cells, due to inhibition of their proper nutritive pabulum. It is now a pretty generally received doctrine that there can be no abnormal condition of mind *per se*. It must arise from some molecular derangement of

the brain-cells, from poisonous material floating in the blood, or from an altered condition in the arterial current, either in quantity or quality. But I am much inclined to believe that, independent of the mutual relationship existing functionally between mind and body, we ought to take into consideration what seems to be a fact of no small importance—namely, the generation and accumulation of what might be termed psychic force, as distinct from nerve force, and which, in my opinion, acts upon and in correlation with it.

I have known men whose intellects were, in common parlance, obtuse enough, but under the influence of wine the brain would become stimulated into new life, and their previously dormant intellectual faculties shine forth in lustrous and resplendent ideas.

The great interest that attaches itself to the connecting link between the material and the immaterial, the psychical and the physical, the volitional and automatic, is of such magnitude, and fraught with so much profound philosophical research from the early ages of reasoning, that the more its investigation is carried on the greater appears to be the extent of illimitable space which is opened before us.

Modern writers of a somewhat careless and indifferent mode of reasoning (I mean in a purely philosophical direction) have attributed, and with truth, this state of things to a want of candour on the part of the purely metaphysical school—a want of concession to undoubted physical truths—and an utter disregard of the rapid advance which has of late years been made into the structure of the nervous system, and the seats of propagation and mode of conduction of nerve force. Here the clinical worker in the field of diseased nerve-states will most assuredly in the course of time, by patient and profound investigation, be able to bring forward such evidence as will materially shape the views of the purely psychical school. But, honestly speaking, this will be no invasion of true psychical philosophy, and for that reason I hold, and it cannot be fairly denied,

that man's entity is made up, not of body and mind or spirit alone, but of body, mind, and a psychos absolutely distinct from either. And I think that, as physicians, we shall do well to leave in the hands of the pure metaphysicist the relation that mind has to soul, while we take up the ruder and, if you will, grosser elements which connect mind with body. And surely we can have no better demonstration of the latter than in the play and expression of the various so-called emotions. Therefore I hold that the materialist has a fair field in studying the connection of mind in relation to body, while the metaphysician may plant, if he choose, his standard in the realms of the unknowable, and study the correlation of mind and soul. For it must be understood that man's entity, after all, consists of, in the words of St. Paul, "Body, soul, and spirit."

"When man," says Schlegel, "is considered relatively to his external existence in the sensible world and Nature, to which by his body he belongs, and forms a constituent part, then the three elements of which, as regarded from this point of view, his whole being or essence appears to consist, are body, soul, and spirit. There is little or no harmony between the higher and spiritual principle of the inner man and the outer world, to which properly his sensuous faculty belongs. . . . No doubt the external frame of the human body, with its wonderful organization, presents in the prime of its development the corporeal image of a more exalted beauty. . . . But, on the other hand, it is exposed and subject to innumerable injuries, sufferings, disease, and corruptions. . . . Added, then, to the other two elements of man's being, spirit and soul, the organic body forms the third constituent, in which, however, is contained the ground and occasion of conflict and strife." *

After considering some obscure affections of the nervous system, with an examination into those especial causes

* Schlegel, "Philosophy of Life," Lecture II.

which of themselves, without any inherited ill habit of body, produce a diseased nervous condition with concurrent degeneracy of the intellectual faculties, this chapter will be concluded.

It is impossible to enter into a consideration of this part of our subject without reconsidering for a moment the *ego* and non-*ego*—the volitional and automatic ; and, although I am an advocate for the truth of transmitted hereditary constitutional cachexies, yet I cannot, from my experience, come to a similar conclusion with regard to the habits, or what might be termed mental idiosyncrasies, and intellectual qualifications—excepting as they are connected with the condition of constitution ; and there can be no question that temperament, so called, is mainly influenced by the state of bodily health. Transmitted hereditary constitutional cachexies I consider to be the rule, but a transmitted hereditary mental idiosyncrasy, or intellectual qualification, is exceptional. If we take the various professions—divinity, law, physic, engineering, etc.—we shall find it to be an unusual circumstance for the son to attain to the particular individual requirements of the father, or even to care for the profession to which the father belonged.

I have said that temperament is subjective to constitution ; and it is in many instances not only influenced, but governed by it. In the business of the everyday life of the physician, and especially of the family doctor, this is repeatedly exemplified.

Hence it will be seen that I am sufficiently materialistic to come to the conclusion that our acquired habits, hereditary or otherwise, are in a great measure due to constitutional government. This is not volitional. We know how functional derangement produces certain definite conditions of temperament—or, rather, we are as sure as of anything that certain constitutions are prone to functional derangements of certain glandular organs, both secretive and eliminative, which alter the actual constituent normal condition of the

blood ; and this is made manifest, either in an objective manner, as in gout for instance, or in a subjective, as in an altered condition of temperament ; in some amounting to mania—to epilepsy in others—and again, to a depression of spirits or hypochondriasis in others, just according to whatever happens to be the individual temperament or special personal characteristics. In fact, it comes to be a question how far a man is really responsible for an inherited tendency of body. We hear it said that “ So-and-so is a confirmed drunkard, or spendthrift, or thief, or miser, or vagabond ”—or, on the other hand, an exemplary character—“ pious, devoted, loving, unselfish, charitable, even-tempered—nothing ever puts him out.” Some maintain that the latter are attributes special to a healthy organization, whilst the former are for the most part attendant on a diseased constitution inducing especial depraved mental characteristics.

It must be remembered that the action of mind upon body, and body upon mind, is coexistent. And if I maintain that the healthy mind or individual character can be, and is, influenced by constitutional causes, on the other hand I am quite inclined to hold that a previously healthy body, evincing no especial tendency to any functional derangement, can, by excessive mental strain, be so acted upon as to become functionally diseased ; then the enfeebled and disorganized body reacts upon the previously diseased mind, leading to the worst form of obscure, and even of readily recognized, nervous diseases. There are accredited conditions of the nervous system which can undoubtedly be said to be acquired ; but inasmuch as we are differently constituted, both mentally and physically, and as in one person the balance of the psychical and physical forces is less stable than in another person, I think that we cannot fairly be held responsible for acquired tendencies. Though all persons are *blamable* for *acquired bad* tendencies, yet, from circumstances, one person may be less blamable than another.

CHAPTER VI.

The Treatment of Nervous Exhaustion.

The greatest possible pleasure and happiness which can fall to the lot of a physician is to cure disease. The misery entailed by disease is the greatest of all human miseries. Health means the bliss of man's mortal existence; disease entails discomfort, distress, wretchedness, premature decay, and death. Vice is the product of disease, and disease follows as the outcome of vice. A pure mind in a healthy body knows not vice. Man's responsibility and morality must be based upon the healthy state of both mind and body. The physician is appealed to—I am happy to say, not always in vain—to bring about this unity of health in both. The integrity of man's moral and of his mental life is co-existent; they cannot be separated without each other's destruction. No physician can be true to himself or to his patients who does not recognize this. Without the enforcement of moral laws, man is powerless to combat disease, and especially those forms of disease to which this book refers. "There are more things in heaven and earth than are dreamt of in your philosophy, Horatio."

"A life of nothings, nothing worth,
From that first nothing ere his birth
To that last nothing under earth!"

It may be that the majority of people would not care to live their lives over again; it is so that the majority of

nervous people would not care to live theirs over again. It is not an uncommon thing, however, for my patients to express the idea that their lives are so wearying, so distressing, so full of vague fears and dread, so hopelessly intolerable, and yet in the same breath they are especially anxious concerning the future. "I don't think I shall ever get better," followed immediately by, "You are quite sure that the medicines you are giving me will not injure my constitution?" are remarks frequently made to me in the same breath. This is but one feature of the inconsistency which is so common in neurasthenia. Thus, it is uppermost that the physician must discard all narrow-mindedness; he must go beyond mere routine treatment. He must look on all sides as far as possible, see everything, and then select whatever weapons he finds by practice the most serviceable, with which to combat and to conquer a most subtle and crafty foe. I have no hesitation in saying that he will be utterly unsuccessful if he allows his better judgment to be carried away by any wave of fashionable treatment, no matter whether it relates to drugs, to diet, to hygiene, or to modern scientific theories; for he must not only be conversant with all modes of treatment, but he must have a thorough practical knowledge of and be master of all. No one doubts the value of many drugs of modern invention, and especially those which have a direct action upon the sympathetic nervous system. Yet in the administration of these drugs we are all bound to remember that the weapon of defence is also a weapon of offence, and the very thing which we employ as a curative agent may become the instrument to provoke a permanent condition which it was selected to cure. This is exemplified occasionally in the use of such drugs as atropine, nitrite of amyl, nitrite of sodium, nitro-glycerine, chloral, and some others. However, they are well-known agents for the relief of the most distressing and agonizing symptoms, and when used with judgment they are invaluable. The skilful swordsman,

before entering into mortal combat with his foe, selects the weapon which he can best trust. It matters not to him whether it comes from Toledo or from Birmingham. The scientific and skilful surgeon of to-day selects the instrument which he knows by experience and by practice is the best fitted to perform a certain operation ; his success is frequently dependent upon this selection ; and such-like judgment should guide the physician in the administration of drugs. The surgeon sees not only to the size of his knife, but to its sharpness, its cleanliness, and its balancing power, according to the textures which he has to divide. The physician fails in the true administration of drugs if he does not consider the precise object which he has to accomplish, the constitutional and diseased state of the patient to be medicated, and not only the kind, but the dose of the drug to be given, the correct hours, and the frequency of its administration. This question of dosage seems to me to be of paramount importance. In these days, when patients talk of drugs in the same flippant way that they do of morals, politics, and religion, and knowing just as much actually of the one as the other, the physician is not unfrequently non-plussed and sometimes put *hors de combat*. He knows perfectly well by long experience that his patient can be cured by the administration of a certain drug, in a certain dose ; but says the patient, "Dr. So-and-so told me I was never to take this drug, it was too depressing, or too lowering, or too irritating, or too exciting, for my constitution ;" or it may be, "I have taken such a drug before, and it has been quite useless"—not knowing that the same drug may in a certain dose, and given at the wrong time, be a depressant, but when given in a different dose and at the right time it may be both stimulant and tonic. A very simple and common example of this came before me recently in a lady suffering from brow ague, to which she had been a martyr for some weeks. I prescribed for her twelve grains of quinine to be taken

daily in one dose prior to the attack coming on, and three doses cured her; but when I gave her the prescription she said she was sure the quinine would do her no good, as she had been taking fifteen grains of quinine daily in doses of five grains each.

The physician who knows his work and does it fearlessly can afford to smile with contempt, and even scorn, upon that fickle trickster Fashion; but doctors are mortal, like Miss Jones with her tight-lacing and her high-heeled boots. Iolanthe reigns to-day and is dethroned to-morrow.

I have just been reading the address by Dr. Hare, delivered at the annual meeting of the Metropolitan Counties Branch of the British Medical Association in July last, entitled "Good Remedies—out of Fashion." This highly accomplished and distinguished physician reviews some of the most notable changes in the treatment of disease which have occurred within his own memory during the past five and thirty years. He regrets that many remedies have been discarded which at one time in his experience were found to be invaluable. My own experience and opinion are quite in accordance with Dr. Hare's views. "It is not long ago," Dr. Hare says, "that in a very urgent case of bronchitis I advised the administration of an emetic, when the gentleman whom I had been called to meet in consultation said, 'Why, I never gave an emetic to an adult in my life.'" (My colleagues at the Central London Sick Asylum will remember what really marvellous success followed the administration of emetics in acute disease and inflammation of the respiratory passages.) Again, in reference to bleeding in one form or another, he says, "I cannot believe, I do not believe, that the united testimony of the sages of our profession for more than two thousand years bore witness to one continuous error, to a delusion and a lie. Formerly," he says, "there was no hospital without its cupper, and he came every day to carry out the orders left by the physician or surgeon during the

daily visits, and I doubt if now there be a cupper attached to any one of the London hospitals.”

Dr. Hare may be pleased to hear that cupping, both wet and dry (particularly the latter), is adopted by me in my practice almost daily ; and with regard to blisters, large, small, flying, and permanent, I am fully persuaded that in many commencing changes of the spinal cord they have been more useful than all the drugs and galvanism combined. But I shall have more to say concerning counter-irritation farther on.

I will now review briefly those drugs which I have found useful in my own experience and practice in the treatment of nervous disorders. I say my own experience because, after a large practice of over twenty years, there are certain remedies which have well borne the test of time. I have given much thought to the weeding of remedies, and I am now quite content to leave the science of medicine to be followed out by my younger brethren, and to devote the remainder of my professional life to the study of the art of healing, and here it is that experience and practice must bear fruit. It is a *tabula rasa* which admits of no disguise. The so-called chronic disease is too frequently looked upon as incurable, but this is by no means my view of the position. The do-nothing system, with rest and change, does not find favour with me. Disease once planted by nature is manured and cultivated by nature. Nature's processes may be healing and reproductive, but they are, alas ! too often destructive, as most people know to their cost. It is the height of folly to talk of leaving disease to nature ; she can be kind, but she is too often cruel, and in reference to disease we are compelled, as physicians, to look at the cruel side of nature. This is our office, our duty, and our obligation to suffering humanity, and nature will often respond to a little persuasion, and aid us in effecting cures, if we call upon her for assistance in a deferential, submissive, and respectful manner. Nature never will be completely subordinate to man.

Drugs and Remedies for Internal Use.—*Quinine* is an especial nervine tonic where the sympathetic nerves and centres are inhibited ; it stimulates them to overcome this condition, and tones up the vaso-constrictor nerves, and so braces up the whole system by invigorating the general nerve power. It must be remembered that it tones up rather than builds up, and it is more useful in nervous debility than in nervous exhaustion. In the latter case, it can be tolerated in unusually large doses without producing any of the discomforts which usually follow its administration. In the nervous exhaustion in the rheumatic type of individual, it seems to answer very well given once a day in lemon-juice.

Arsenic is certainly a nervine tonic, but it must be persevered in for some time. It seems to act specifically in the same class of cases as quinine, and as I said of quinine, so I maintain of arsenic—that it is more useful in cases of nervous debility than it is in nervous exhaustion. My theory of its action is that in some way it promotes nutrition, and Schmidt and Sturzwage have determined that small doses of arsenious acid produce a decided retardation in the bodily metamorphosis generally.

Zinc and its preparations are undoubted nervine tonics of great value ; they also possess a sedative action. A very useful pill is one composed of the valerianate and phosphate of zinc with the compound assafœtida pill of the London Pharmacopœia. This pill is very effectual in relieving flatulent nervous dyspepsia. I tried some years ago the bromide of zinc, hoping that I should find in it a sedative and tonic, but I was disappointed.

Iron.—I rarely give this drug in nervous exhaustion, unless it be in pallid young girls, and I then give it with sulphate of magnesia. I have signally failed in procuring any good results from the salts of iron, even from the phosphates or the hypophosphites. My experience has been that these preparations retard digestion and assimilation.

Cannabis Indica.—This drug has long been discarded from my list of remedies. I have tried it over and over again without any good results, sometimes alone, sometimes in combination with the bromides.

Bromides.—I maintain that without the bromides, we should be unable to treat any form of nervous disease. I am frequently hearing all sorts of things said against these drugs, and not unfrequently do I find my patients alarmed at what the druggist says, or what some doctor says, about their depressing action and the enormous doses which I give; but my experience is that the bromides, to be of any use at all, must be given in large doses. My practice is to combine in a mixture the bromides of potassium, sodium, and ammonium with the aromatic spirit of ammonia and some vegetable bitter infusion; but I frequently give a tonic during the day, and the bromides the last thing at night. In those cases of nervousness associated with subjective sensations (minor auræ) and morbid fears, I have given these salts in doses of six drachms daily before I have found any positive and decisive results. These drugs compose the nervous system; they allay what I venture to call nervous molecular irritability, and they tone up the sympathetic centres, so that they do not yield so readily to reflex impressions. They substantiate the *ego*, and give moral courage by establishing a balance of power between the volitional and automatic nerve centres. The bromides act much better in some cases than they do in others. In abdominal and gastric neuroses they are particularly valuable. They are as merciful in the treatment of epilepsy as chloroform is in the relief of pain. This drug was first introduced into this country by Sir C. Locock in 1851, and no drug has superseded it in value. In hysterical cases accompanied with sexual excitement, it will be found exceedingly useful, and as a sedative at night, where opium cannot be borne, it is really invaluable.

Iodide of Potassium.—This is one of the most valuable

drugs which the physician has at his command. In nervous disorders he truly commands this drug to carry out his object, and it does it, too, as surely, as completely, and effectually as the surgeon's knife in excising a tumour. In my opinion and experience, it is the only drug at present known which will cure loco-motor ataxy in its primary stage, and subdue and eradicate all the troublesome subjective sensations of commencing general paralysis. It is indeed unfortunate for the patient and for the physician when this drug cannot, under ordinary circumstances, be tolerated. There are patients, however, who take this drug without its producing the well-known symptoms which accompany its administration in some people. I never, or rarely ever, give iodide of potassium in small doses three or four times a day; I much prefer giving in one large dose at bedtime. I found by my own experience that I could not take this drug in small doses during the day, but I could take it well in one large dose at bedtime, with the most decidedly beneficial results. I could easily write a volume upon the action of this drug, and illustrate by many cases, but here I have merely to commend it.

Chloral is a drug which I have long since ceased to use, unless it be in very exceptional cases; it is certainly useful in some forms of insomnia, and it also relieves pain and general irritability, but it has the effect of lowering the tonus of the body, and of breaking up the red globules of the blood. I do give chloral, however, in certain cases where there is no decided state of, or tendency to, blood impoverishment. The narcosis produced by chloral is so immediate and so complete, that, were it not so prejudicial to blood oxygenation and lymph corpuscular assimilation, I should use it much oftener than I do now.

Phosphorus.—I merely mention this drug, or rather, I would say, poison, for the reason that it has been so puffed and quacked by men both in and out of the profession, that patients have been led into the belief that it

is a sovereign remedy for anything connected with the brain or nerves. A greater popular error in medicine never existed.

Phosphorus has been for some years so associated with and talked about as forming an important integral part of the brain and nervous system, that whenever debility or exhaustion shows itself, it is merely an evidence of the demand for phosphorus. This drug was undoubtedly at one time a popular craze, and was given so extensively that people smelt of phosphorus. I am glad to say that this error, like some few popular errors, has received its death-warrant, and, like many other vaunted specifics, is being shelved, but only, I suppose, for a time. I have never found this drug to have the curative influence in nervous exhaustion which has been ascribed to it by some. In ordinary debility it will be found a general tonic, but nothing more.

Strychnia.—This powerful, valuable, and, in some cases, dangerous remedy is nowadays used far too indiscriminately. That great neurologist, Dr. Brown-Sequard, in his lecture on Paralysis, makes the following statement:—"I know of a large number of patients whose paralysis has been increased by the influence of this medicine." It produces an augmentation in the vital property of the spinal cord, in two ways: (1) in increasing the amount of blood in the spinal cord; (2) in acting in a special and direct manner on the tissue of the cord. As regards the first mode of action, we shall only state here, as a positive fact, that the quantity of blood circulating in the spinal cord is very much increased, and that consequently its nutrition is increased. It is important to remember that strychnine, persistently administered, is of the greatest value in conditions of nervous exhaustion of the brain and spinal cord, when there is no congestion or inflammation. Although this drug is most undeniably of great value in a bloodless condition of the spinal cord, it is almost cer-

tain to be injurious if there be congestion. I have seen very serious results follow its use under these circumstances; yet, when properly, carefully, and judiciously given, it is unquestionably a tonic of prime importance in most nervous affections resulting from deficient nutrition, which condition, as is well known, is most frequently the cause of nervous debility and nervous exhaustion. It has been found exceedingly valuable in that troublesome condition of nervous exhaustion, hay fever, and so highly prized is it by some people in this disease, that they look upon it as an absolute cure. Dr. Salter, in his admirable work on Asthma, says, "I have a lady friend who takes it every year, and when she does so has perfect immunity from the malady."

Sulphur is a remedy about the action of which, as a drug, we know but little. All that we do know is that it is frequently not only useful, but positively curative. Both Graves and Brown-Sequard speak of its value in cases of reflex paraplegia or white softening of the spinal cord in which there is no irritation of this nervous centre. I generally advise my patients to place a pinch of sulphur in their boots every morning, and that it gets absorbed into their system is proved by the colouring of any metals which they may be carrying. It certainly disposes of rheumatic and muscular pains.

Opium.—This valuable drug, when judiciously and carefully, yet fearlessly, administered, is one of the greatest blessings to suffering humanity. It is powerful to do a great deal of harm; it is also all-powerful to work almost miraculous cures. The greater the prostration, so much the more valuable will opium be found to be. I have arrested cases of advanced consumption with this drug, which appeared, and which were in fact, progressing by rapid strides to death, when other remedies were absolutely useless. And likewise, in many other cases of pure nervous exhaustion (by the term "pure nervous exhaustion" I

mean that condition of the nervous centres, as distinct from nervous depression, which is really not nervous exhaustion in the strict sense of the word) associated with extreme bodily and mental irritability, I have found opium to act like a charm. Thousands of men, women, and children die annually in this country from the delirium associated with profound nervous exhaustion, as it is found in the last stages of acute disease, such as fevers, inflammation of the lungs and the viscera generally, who would be saved by the timely use of opium carefully administered. "To allay nervous irritability, to promote nutrition, to equalize and correlate nervous action, to insure rest, and to retard molecular disintegration and dissolution, are some of the many virtues of opium."

Digitalis is a very valuable drug in many forms of nervous exhaustion, and especially when the exhaustion is due to and in association with a state of exhaustion of the heart and of the blood circulation generally. And where, I would ask, do we find nervous exhaustion without this being the case in a greater or lesser degree? Every one who has used digitalis thoughtfully and observantly, must be aware of its powerful action as a tonic and stimulant to the walls of the heart and the arteries. If the finger be placed upon the pulse of the nervously exhausted patient, what do we find? A small soft compressible artery varying in beat with every mental emotion, thought, and idea, sometimes giving a sudden bound and starting off like a timid nervous fawn, and just as suddenly relapsing into a condition of apathy and indifference. If the stethoscope be placed over the heart, we are audibly witnessing distinct and decided confusion; the lazy, capricious, and unequal action of the heart is just as evident through the sense of hearing as it would be to the sense of sight, provided the heart were beating before our eyes. These conditions are unfortunately as evident to the patient as they are to the physician. The feelings of faintness, confusion, defects of

vision, giddiness, and palpitation are merely the result, in the majority of cases, of "heart exhaustion," and it is in such and allied conditions that digitalis is always useful.

Valerian can be administered at those times where the depressed nervous system exhibits signs of hysteria. It may be given with drugs of a like class in their action, such as assafoetida, galbanum, musk, sumbul, and so on. But these will never cure nervous exhaustion.

Alcohol.—Its use and abuse are equally illimitable. The craze for temperance which is now so prevalent is one of the greatest blessings which this country has ever experienced. Its moral value is inestimable. I am a firm and unhesitating believer in the value of alcohol in the treatment of disease, and in its use as a common necessary of life ; in each condition I consider that alcohol is a necessity. The total abstainer is frequently a grumpy, growling, cadaverous, ill-tempered, shrivelled specimen of humanity, who is always dyspeptic, despondent, flatulent, and careworn, not like a man who was sent into this world to enjoy in due season the fruits of the earth. The excessive use of alcohol is to be condemned, but what constitutes excess? This question is best answered in the words of Dr. Hammond, of New York, in an essay upon "The Effects of Alcohol upon the Nervous System." He says, "If I was asked, What constitutes excess? I should answer that, in the abstract, I do not know, any more than I know how much tea or coffee any one can drink with comfort or advantage ; how many cigars can be smoked without passing from good to bad effects ; how much mustard on beef agrees with the eater, or how much disagrees ; or how much butter can be eaten on buckwheat cakes. In fact, I do not know that any of these things can be used without injury. For to some persons tea and coffee and tobacco and mustard and butter are poisonous. Every person must, to a great extent, be a law unto himself in the matter of his food ; no one can *à priori* tell him what and how much are good for him.

A single glass of wine may be excess for some individuals, while to others it fills a *rôle* which nothing else can fill. That alcohol, even in large quantities, is beneficial to some persons, is a point in regard to which I have no doubt ; but these persons are not in a normal condition, and when they are restored to health their potations should cease. I have seen many a weak, hysterical woman drink a pint of whisky or brandy a day without experiencing the least intoxicating effect, or even feeling excited by it. The exhausted nerve-tissue has seemed to absorb it with an energy as though it were the one thing craved, and recovery has been rapid under its use when all other means have failed. I have seen strong men struck down with pneumonia and fever, and apparently saved from the grave by brandy or other alcoholic liquors. I have prevented epileptic seizures by its moderate use ; neuralgic attacks are often cut short by it, and sometimes entirely prevented. It has been efficacious in catalepsy and in tetanus ; it is one of our best antidotes to the bites of poisonous serpents. As I have repeatedly witnessed, in the convulsions of children from teething and other sources of reflex irritation it is invaluable ; in the spinal irritation to which women, and especially American women, are so subject, nothing takes its place ; and in certain forms of gastric dyspepsia it must be given if we wish to cure our patients. Most physicians know all this as well as I do, and they know that I have by no means mentioned all the diseases in which, so far as our knowledge goes, alcohol in some form or other is the sheet-anchor of our hopes. I would not like to be cut off entirely from the use of alcoholic liquors in my practice, and yet I often try to do without them, for I am fearful of exciting a thirst which will not stop at my bidding. Still, when they are clearly indicated, I give them without self-reproach, feeling that I have done my duty, and that I am no more responsible for the consequences of any after-abuse than I should be for the shipwreck of a child whom I had, in

good faith and with the object of contributing to his welfare, sent on a voyage to Europe." Yet, if men must be intemperate or total abstainers, let us decidedly have total abstinence rather than intemperance. No one has had an opportunity to see more of the vice and wretchedness, with the total abolition of moral sense, which is the effect and influence of alcohol, than I have during the course of my professional life. On the other hand, however, I believe it possible for even the bad effects to be counterbalanced by the good effects which a moderate and judicious use of alcohol creates. The physician of experience and judgment, of observation, of discrimination, and of reasoning power, knows that the treatment of disease without alcohol means death in a very large number of cases, and I do not believe that there can be a man so foolish, so ridiculous, so misguided, or so mean as to fail to prescribe alcohol for his patient because his moral ideas of intemperance ranged like an impregnable barrier before his distorted vision. The physician nowadays (such is crazy fashion) scarcely dares tell his patient, either male or female, who comes to him complaining of wakefulness, that "A glass of stout at bedtime is all you want," or to the woe-begone-looking girl or woman, "A glass or two of burgundy a day will cure you," for fear of receiving the reprobation of some good temperance fanatic. It puts me in mind of a clergyman who was chairman of an anti-vivisection meeting (doubtless a very good man) where I was present ; he said that he would rather die than that science should save his life by any means which had been the cause of one moment's suffering to a poor little mouse, or even to a flea. I need scarcely say that I pitied this good man—all such people are deserving of pity. There are some people in this world who are really too good, and unfortunately these not unfrequently die of secret drinking and chronic alcoholism. Such is the inconsistency of extreme tendencies.

Diet.—If there is one thing above another which expe-

rience has taught me during the past twenty years, it is this,—that most of that which has been written relative to foods which are digestible, and to foods which are not digestible, is unsound and unscientific. The old-fashioned saying, "What is one man's drink is another man's poison," is the experience of every one. The influence of the mind upon the process of digestion, through the pneumogastric nerve, it may be to accelerate or retard the digestive process, seems to have been lost sight of by the scientific chemist who deals with effects and never goes to causes, which he disregards. The digestive process must be chemical, inasmuch as it is biological, and the physician has much more to do with the vital and the physiological than he has with the chemical. I do not mean to infer that the physician should neglect the chemical examination of the urine, the saliva, and the blood, for the precise kind of diet will often be indicated by certain changes which are going on in these products ; but I have as yet failed to see—and my failure in this respect increases every day—that "the chemical theories concerning digestion and alimentation, however sound they may appear from a chemical point of view, are nevertheless untrustworthy from the practical point of view."

What is the use to the invalid patient to be told by the chemist that one hundred grains of starch, or one hundred drops of alcohol, or half a pound of rump-steak are composed of so many atoms of carbon, hydrogen, nitrogen, and oxygen, and that, when taken into the stomach, the processes of digestion and assimilation will send these elements flying about the body in an atomized molecular form ; and that these will be grasped by the several tissues which require them, and so build up the grand framework of life ; when all the while these atomic elements are never generated at all ? And why ? Because the vital processes are inactive. The alcohol can be found in the urine, the blood, and the breath ; the rump-steak and starch can be found as such in

the evacuations. We know—everybody knows—that sugar is fattening. Certainly, says the chemist, and upon chemical grounds. Then why, I would ask, does not sugar fatten all alike? Some people take sugar and get thin. Yes, says the chemist; it is because their powers of assimilation are defective. And this is the kernel of the whole question. Our knowledge, vast as it may be, and increasing as it undoubtedly is, leaves us in chaos, when upon minute chemical analysis we endeavour to explain the laws of life, of health, of disease, and of death. How many thousands of people there are living who have been told that tea is death to them, and yet they have lived to see their physicians die, whilst they still live to take tea. By what known chemical law is it that a soda-and-brandy or whisky will produce intense neuralgia of the bladder and prostate gland in some persons, when brandy with water alone, or soda-water alone, does not produce any effect? How is it that some men can take a hearty meal with impunity in the country, when they cannot do so in London; whilst others are obliged to live sparingly in the country, when they can live well and be comfortable in London? I think the most extreme chemist or biologist would often be incapable of explaining these conditions upon any rule-of-thumb basis.

No man is better able to comprehend and to realize the intrinsic value of, and reason deductively upon these phenomena, than the physician who is thoroughly conversant with the marvellous manifestations and subtle powers of the brain and nervous system, not only from a material, but also from a mental point of view.

Man is omnivorous. This is an accepted doctrine. Even Mr. Gladstone can find time to tell the people “that the capacity of the human stomach is enormous”—not only its capacity to hold, but its capacity to digest. It is almost beyond belief when we consider the tremendous amount of work which the stomach is capable of effecting, and it does

this not unfrequently without a murmur of reproach ; but now and again the brain steps in and says, "My friend Stomach, I cannot stand this any longer. You are keeping me in a constant state of unsettlement ; you are continually making unreasonable demands upon my exchequer ; you have already considerably overdrawn your account with me, and the end will be, if I do not exercise my controlling influence over you in some way, we shall both break down together. My treasury is wellnigh *exhausted*, and you must know by this time that you not only cannot work well without me, but my influence is positively essential to your welfare. You are in a state of positive bankruptcy, my friend. The kidneys will not take your bills ; they say that you shall not run them into *liquidation*, for they will be *inadequate*, and you know they are supported by Sir Savory *Water-low*. Sir Vernon *Liver* has for a long time refused to cash your cheques, and the world must soon recognize his chagrin and mortification by the yellow stain which he will cast upon your character and surroundings." What is the result of this gentle reprimand ? A state of dyspepsia. The stomach may become sulky, as it not unfrequently does under these circumstances. It refuses the kindly advice which the brain gives it ; hence ensues a suspension of business, failure of appetite, nausea, sickness, and general exhaustion. There is another condition of stomach which must be noticed, and it is the exact counterpart of that which I have just endeavoured to pourtray. The stomach in this case, instead of playing the part of the spendthrift, and exhausting its resources and running into bankruptcy, becomes lazy, indifferent, careless, and apathetic. It conserves rather than expends its energy, and it does so at the expense of nutrition and the regeneration of tissue generally throughout the body. It has an utter distaste and contempt for food, and frequently rejects it rather than have anything whatever to do with it. These conditions we choose to call physiological, and they each

require careful, well-studied, and appropriate dietary and treatment.

It is absurd to suppose that nervous exhaustion can be cured if these conditions are not fully, fairly, and fundamentally considered.

To make healthy fat we must have pure blood, which is essential to healthy nerve-tissue; and in order to insure this, *diet* must be one of our first thoughts—not only with regard to what we eat, but also with regard to what we drink.

The pains of indigestion, so often attributed to over-feeding, are really more frequently due to under-feeding.

Digestion in cases of nervous exhaustion is very variable, but in the majority of cases it is exceeding rapid; so much so that I cause my patients to take food at least six times in the twenty-four hours, but it must be food which the *stomach will digest*—fish, eggs, milk, mutton, poultry, game, and such like. Nothing could be more ridiculous than to attempt to cure nervous exhaustion by inducing the patient to become vegetarian, and by permitting him to take whatever he may fancy. The tastes and desires of the neurasthenic are not only capricious, but in many cases they are false and misleading, and in no respect is this more manifest than in the question of diet. Patients are constantly saying, “I cannot take fish, or eggs, or milk. They always disagreed with me; I never could digest them.” They forget the vast difference which exists between the healthy stomach and the stomach in a state of functional derangement. All cases of nervous exhaustion want guidance and moral influence, more particularly in reference to diet than to any other curative agent, and each stomach must be treated according to its own respective requirements, and, I might even go so far as to say, its own peculiarities.

All who suffer from nervous exhaustion wonder why it is they can one day take with impunity those articles of

diet which, perhaps, on the following day give them severe indigestion, flatulence, headache, heartburn, or palpitation. But the stomach makes itself manifest by signs and symptoms locally, just in the same way and after the same fashion that the body generally manifests signs of fatigue and exhaustion quite suddenly and unexpectedly. The individual, as we have shown, will one day be equal to anything, yet on the following day he is completely undone by the least exertion ; and so it is with the stomach.

I am a great believer in what I call ringing the changes in articles of diet, both with regard to meat and drink. I believe it is quite as necessary as change of air and change of scene, and for this reason I feel that it is quite impossible to state, in this little book, the varying and various forms of diet which I am in the habit of advising my patients to adopt, in accordance with their constitution and the stage of their disease.

External Treatment of Neurasthenia.—Under this heading will be considered what to my mind forms a very essential and important part of the treatment of nervous exhaustion, so important, in fact, that I doubt if any case of nervous exhaustion can be effectually and thoroughly cured without it. External treatment takes a wide range, from the mere rubbing of the body to actual cauterization, although the latter is rarely necessary. Sometimes the mustard foot-bath, with the application of dry mustard to the spine and behind the ears, is all that is required.

Massage.—This is a remedy which has long been known, and its value has been fully recognized. Of late years it has become highly popular, and justly so, for in many cases of chronic disease I have found it of special service. To perform massage properly and efficiently, especially in joint disease and in the wasting of muscles, it is necessary that it should be continued daily for weeks, and sometimes for months. Patience here is undoubtedly a virtue. I have, in my own experience, been almost wearied with my con-

tinued efforts. It is an important and too frequently neglected fact, which must be borne in mind, that at the moment when massage appears after repeated efforts to be of no avail, its persistent and continuous use may not unfrequently lead to the most happy results. Massage requires a delicate sense of touch and sympathetic sensibility which is rarely, if ever, acquired, and, as a true remedial agent, it is not so purely mechanical as many suppose. Massage, in the hands of many who profess to exercise it, is productive of more harm than good. Brute force is not necessary. Powers of endurance and sustained and prolonged exertion are absolutely essential. A good masseur should be a person of healthy constitution, capable of intellectual conversation and diversion, determined will, decision of character, and intensity of purpose. There is no occasion whatever for massage to be painful even when painful parts have to be manipulated. One ought to be able to massage a painful joint or a tender ovary without producing pain. In fact, the great point in massage is the relief which it affords to pain; its calmative and soothing influence is one of its most characteristic features. Opinions differ as to the precise manner and mode of action which should be followed by the masseur. Some maintain that the skin should be first pinched, and that the deep parts should be reached subsequently; that the action should be quick, rapid, and jerky. I am entirely opposed to this mode of procedure. If a painful joint has to be dealt with, it must be first extended; the removal of pain by this means is at once apparent; then the joint should be steadily and firmly manipulated. If the abdomen has to be massaged, the thighs should be partially flexed, and deep but very carefully graduated pressure should be maintained. The pressure should be carried onwards for a minute or so over the entire abdomen, very steadily and without removing the hand. After the deep parts have been so handled, then the superficial structures

can be firmly squeezed and gripped, and even pinched and kneaded. A knowledge of anatomy is really necessary. It is not my object to give in detail the several points which have to be attended to in the process of massage. It is rendered much more complete and effectual by using it in connection with percussion and electric nerve vibration and excitation. The value of massage aided by galvanic excitation of the spinal nervous centres cannot be better illustrated than in cases of neuralgic pain; every spinous process must be carefully pressed in order to discover the *painful spot*, which can invariably be found, and which is really the *painful centre*. Upon this centre the galvanic current should be directed whilst massage is being applied to the arm, the leg, or the abdomen, etc. I have cured cases of neuralgia of the face, of the arm, and sciatica, and lumbago by this means when massage alone has signally failed. In cases of habitual constipation from exhaustion and paralysis and inactivity of the muscles of the bowels, and in a relaxed state of the muscles of the womb, and in special defects of the generative organs, the most beneficial and decided results have followed this mode of treatment. I am quite sure that massage with galvanism and nerve excitation are agents of great value in the hands of the skilled workman to cure many conditions of nervous exhaustion, and those small but painful and distressing ailments which are nowadays so common amongst all classes of society, and in the cure of which drugs so often fail.

Electricity.—Ten years ago I was in the habit of applying electricity only in cases of muscular and nerve degeneration due to organic change in the nervous system, but for the past five years I have found out its real value. I use it more extensively, and with a growing belief in its power. Before applying the electric current, the chief thing we have to consider is, Shall we be doing good, or shall we be doing harm? Is the case a fit one for electrical application? There are some men who seem to think that

electricity is life, and that it is a panacea for every ill. If the thousands of people who waste their money in galvanic appliances were to spend it upon the destitute and homeless poor of London, it would be far better for their nerves and their consciences, and the fact of doing a good deed would be to them a far greater source of strength than the magneto-electric chain armour with which they now so uselessly encase themselves.

In the application of electricity we have to be careful (1) about the strength of the current, (2) the time of the application, (3) the length of the application, (4) the locality of the application, (5) the method of the application, (6) the temperament of the individual upon whom we are about to operate.

I have just been reading an extremely interesting and scientific little volume by Professor Rosenthal, Professor of Physiology in the University of Erlangen, entitled "General Physiology of Muscles and Nerves," and I should strongly advise my reader to do the same if he wishes to be master of the scientific data connected with the subject of electricity as applied to nerve and muscle.

The amount of the electric current that passes through any part of the body when an application is made to it depends on three factors—the electro-motive force of the battery, the internal resistance within the battery, and the external resistance outside the battery in the conducting wires, in the electrodes, and in the patient's body.

The amount of electricity that passes through the circuit is equivalent to the electro-motive force divided by the external resistance and the internal resistance; thus $\frac{E}{R+r}$

But the elements of this fraction are inconstant, and we cannot say definitely that so much electricity has been passing through the patient's body because we have been using so many cells. Of course the use of the galvanometer helps us to solve the difficulty.

The length of the application must necessarily vary according to the circumstances of the case. Beard states that "European neurologists make shorter applications than American. It is probable," he says, "that after a paralyzed muscle, for example, has been faradized for a minute or two, it has received all the benefit it can get ; but different muscles differ with the quality and stage of the disease. When very mild currents are used, the application may be prolonged, in some cases, for one or even two hours. In commencing the treatment the application should be mild, and particularly if the current be directed to the head, to the neck, or to the face. One of the best illustrations of the relation of the locality of application to the strength of the current or the dose of electricity, is found when we make an application to the uterus and rectum. The cervix and upper part of the vagina are not sensitive to electricity ; when the negative electrode of the faradic current is in the vagina against the cervix, and the positive—that is, the weaker pole—is against the spine or on the abdomen, the external pole is felt perhaps painfully, while the inside pole against the cervix produces no pain whatever. This fact is a surprise to the patient, who at first supposes that the application inside must be very painful. If now, leaving the negative pole in position against the cervix, we connect the positive pole with a rectal electrode not insulated, the current is painfully felt at both portions, and must be removed at once. This illustration alone shows the impossibility of attempting to prescribe doses of electricity by the number of galvanic cells used."

Dr. Beard makes a great mistake in the following remark :—"Practically, in the treatment of diseases, the difference between the galvanic current and the faradic is one of degree rather than of kind." This is absolutely contrary to my experience. The therapeutic effects of the two currents are absolutely and essentially different.

Metalloscopy.—Metal therapeutics have had a short

reign, and for the present they seem to be set aside as untrustworthy and, one might almost say, illegal methods in the treatment of disease. M. Charcot's name must ever remain associated with the metal treatment of hysterical paralysis and subjective mental conditions, such as trance and hypnotism. I do not think myself that this treatment admits of anything like universal or practical application. In certain cases I have been able to obtain results precisely similar to those recorded by M. Charcot and Dr. McCall Anderson of Glasgow, but in many cases I have been completely disappointed.

Blistering.—For the past twenty years I have been persuaded that flying blisters are the best forms of counter-irritation in an exhaustive and irritable state of the brain and spinal cord, and if time and space permitted, I could detail an endless variety of cases to prove the truth of this assertion. In cases of severe neuralgia and localized paresis, when associated as it usually is with a painful condition of the spine, relief may be obtained as if by magic by the application of two or three flying blisters to the painful spinous process, or, it may be, to the back of the neck. Patients who have suffered from pain and weight and feeling of fulness at the back of the head are invariably relieved by the application either of a blister, or of strong acetic acid, or acetic ether spray with chloroform.

That blisters relieve congestion there can be no manner of doubt—not, as some suppose, by the serum which is discharged, but by the reflex contractile influence which the irritation of the blister upon the nerves of the skin exercises upon the internal vessels of the spinal cord and its membranes.

Whilst writing of blisters, I may well say a few words on counter-irritation in general. There is not a shadow or shade of doubt in my mind concerning the value of all forms of counter-irritation in nearly every kind of nervous exhaustion and nervous depression, from a pinch of snuff

or a mustard poultice to deep cauterization. *Rheumatism* and *rheumatic gout* are as much due to functional disease of the spinal cord as Charcot's joint disease is due to organic change in the cord. In a few years, by further careful study and observation, this will be proved beyond all question—perhaps whilst I am writing some man is elucidating the problem ; I hope it may be so. Strong acetic acid is a very valuable and efficient counter-irritant ; it is not only valuable to relieve pain, but it often quiets, by its derivative action, those subjective symptoms in which body and mind are associated.

Small flying blisters to the spine are in some cases much more effectual than extensive and prolonged blistering. I must say that in many severe cases of congestion of the spinal cord, with inco-ordination of the lower limbs, spastic gait, and increased reflex action, and also where the knee reflex has been absent, I have found free blistering the most curative agent. It is interesting to me to review the many almost hopeless cases which I have cured by careful, well-timed, and appropriate counter-irritation.

Hydropathy.—In the cure of nervous exhaustion, if any person were to say to me, "Doctor, I am determined to be treated in one of two ways, namely, by the internal administration of drugs alone, or by any external means which may suggest themselves to you, but not by both," I should say, "My friend, I prefer to try our external remedies first ; and amongst these remedies, such as electricity, massage, inunction, blistering, etc., we must include hydropathy." It seems strange that hydropathy, scientifically and judiciously applied, should have been neglected for so long a time in this country.

It is only within the last thirty years that a Turkish bath could be had in London, and until recently I have been quite unable to find any establishment in this vast and wealthy metropolis where anything like a systematic course of water-douching and medicated bathing could be

obtained. The value of the topical application of cold water to reduce general temperature in inflammation and fevers is not yet thoroughly recognized in any of our fever hospitals, yet its value is more certain and less questionable than that of quinine. At the present moment I have a patient under my care in the Hospital for Consumption at Hampstead. On admission her temperature was 104° , pulse 130, respiration 40. She was a mere skeleton; very active mischief was going on in both lungs; the respirations were hurried and the countenance was anxious, and altogether her condition was most critical. I ordered the nurse to place a cold-water compress over the epigastrium every night, and the best results followed the treatment. It is quite astonishing to see how fearful some people are of water, and more especially of cold water; and, although under certain circumstances I hold that cold water in the form of the morning bath is harmful, still to the majority it is healthful and invigorating. I should like to write an extended article upon this subject, in which at the present time I am deeply interested, but I must pass on to consider briefly

Clothing.—Neurasthenics are certainly extremely sensitive to cold and to changes of temperature. It is a common thing for patients to say, "Do feel my hands, doctor; I used to have a warm dry hand, but now they are invariably cold and moist, and my feet are just the same." Neurasthenics are unable to resist the influence of cold, and they are also unable to retain the normal amount of heat which their bodies generate, inasmuch as their bodies seem unable to resist the conducting power of the various media by which they are surrounded. I would make myself quite clear by example. Take two persons: the one shall be in health, the other shall suffer from nervous exhaustion. They each stand for five seconds upon a stone or marble floor: the neurasthenic feels the cold immediately, the person in health would not feel the cold in five

minutes. The neurasthenic will also feel and be sensibly influenced by currents of air which would really be inappreciable to persons in health ; hence the necessity which arises for warm woollen stockings, and, above all things, thick boots which are impervious to wet. Neurasthenics must sleep warm. Nightcaps are not necessary ; I would advise patients rather to put their feet in their nightcaps than their heads. Neurasthenics, especially in this climate, should habituate themselves to wear either lamb's-wool or flannel next to the skin. Heavy great-coats or cloaks are not required. The lower limbs must be kept warm, and the arms also. The clothing should not be of too thick material ; the same can be worn with advantage in this country all the year round.

Climate should be as dry and bracing as possible. A fine, clear blue sky and a dry cold air will, at a given altitude, have a marvellous effect upon the neurasthenic. In the summer the air of the Upper Engadine is appropriate, and in the winter Cannes. Nice, Mentone, and San Remo are agreeable resorts. In this country, Malvern, Buxton, Ramsgate, and Margate are the most healthful ; yet, as a place of abode, there is no city so well adapted to the neurasthenic as London, and no part of London is more suitable than West Hampstead. It is quite impossible for some neurasthenics to live by the seaside upon the south coast, when, on the other hand, they feel exceedingly well upon the east coast. Yarmouth and Scarborough are well suited to nervous people. There can be no doubt that mountain air is especially suitable for nervous patients, and it is admitted that nervousness is much more common in temperate regions than in the extremes of heat and cold. Dr. Beard says, " In the extreme north, in the polar regions, or in the extreme south, in the tropics, nervous diseases are very rare, and the increase in our nervous diseases is demonstrable as we go from the poles towards the temperate zone, or from the tropics northward. In this belt,

which includes in the Eastern continent a large portion of Germany, Great Britain, and the northern portion of France, and in the north portion of the United States, nervous diseases are found more than in any other part of the world outside this belt. Nervous diseases that are really of a nervous character, the direct results of a disorder of the nervous substance, are comparatively rare, or of far less frequency, in Italy, Spain, or in the northern provinces of Europe, in Canada, in the Gulf States of America, and in South America, than in this belt I have just described. The prime cause of nervous disease is, without doubt, nervous development and activity, which activity in our higher forms of civilization, especially in modern times, is carried to a degree from which nervous diseases must be the inevitable results."

Travel.—The ordinary observer thinks—and so, it appears, does the profession for the most part think—that the nervous sufferer who has been seeking help and finding it not, has nothing more to do than to travel to regain his mental and bodily health and vigour. This is a decided and unquestionable mistake, certainly, in nineteen cases out of twenty; at all events, such has been my experience. To send the neurasthenic on the Continent for six weeks or two months, constantly travelling and sight-seeing, for the sake of change, is sheer madness. A City gentleman called upon me not long ago for my opinion. He had consulted doctors by the score; in fact, there was scarcely a nerve doctor in Europe with whose name he was not familiar. He said that by the advice of these gentlemen he had travelled all over the world during the past two years, and he was, in fact, worse than when he started; neither the air of the Rocky Mountains, the breezes of the Atlantic, or the climate of Algeria, did him the least good. I am afraid I rather offended this gentleman by telling him that I wondered some one of his medical advisers had not suggested his taking a trip to the Congo.

Another gentleman who consulted me in the summer of 1883 said he had just returned from a voyage round the world, and he was really worse than when he started ; but he made this interesting remark—that during his voyage he was much better in cold districts, such as 43° south, and some parts of the Rocky Mountains.

There can be no great objection to the neurasthenic travelling, say, two, three, or four hundred miles by rail, provided that when he gets to his destination he leads a peaceful, quiet, and sober life in some mountainous district where he has daily exercise, never carried to fatigue or exhaustion. It would be better for him if he had the society of two or three cheerful companions.

Dr. Beard says, "I have constantly under my care cases of both forms of neurasthenia who have spent months and years abroad under advice of physicians, not only without benefit, but in some instances have been positively injured."

Cases of spinal exhaustion especially are very liable to be made worse by the fatigue of travel, by the discomfort of absence from home, by the laborious and oftentimes wearisome and exhausting tasks of sight-seeing. Many are worn out in the picture-galleries and in mountain climbing, and must return home to rest and recover from the effects. Not unfrequently cases of this class progress more satisfactorily at home, when their minds are occupied with their favourite employment, even though sometimes they may be overtaken in it, and become over-wearied and excited.

Mental Recreation.—Physical recreation, walking, horse exercise, tricycling, local muscular movements, the use of the dumb bells, and so on, are, as we have noted, of great value in bringing about a more healthy condition of the body generally ; but there is this essentially important fact to be borne in mind, namely, that the patient must never be fatigued, if it can be possibly avoided. The accepted

doctrine, "that the healthy mind can only exist in a healthy body," is demonstrated clearly in cases of nervous exhaustion. The mind is incapable of any prolonged exertion. I was speaking to a gentleman who had recently become a total abstainer. He told me that for some years his daily occupation had been gradually but surely undermining his constitution, and his nervous system was becoming seriously affected. About four o'clock in the afternoon he became so thoroughly tired that he was quite unable to continue his work without taking some stimulant, and like a wise man he reasoned with himself, and said, "If this goes on I shall have two evils to combat instead of one. In the first place, there is the nervous exhaustion; in the second, there is the alcohol. It is perfectly true that the alcohol rouses me up for the time; but is it curative? I believe the remedy is worse than the disease. My brain tells me by its incapacity that it has done as much work as it can fairly do, and if it is roused up for extra exertion by alcohol, the effect is only temporary; it cannot be lasting or permanent. I'll make the sacrifice at once. I'll have nothing to do with alcohol. I'll give my brain rest, and at four o'clock, when my brain is weary of figures and correspondence, I'll seek recreation for my mind, even at considerable sacrifice of business." The result was just such as his good judgment led him to expect; he left his business at four o'clock instead of later, and in a few months he was practically well. This gentleman was exceptionally wise. There are few men who make this sacrifice of time and money until it is too late. How many there are who under these circumstances resort to the *pocket pistol*, when by determination, and perhaps some personal inconvenience, they may regain their health by mental recreation and brain rest. There can be no doubt about the influence and power of the mind in helping us to overcome vital physical depression, even when the physical depression is fast tending towards molecular disintegration

and death. The mind should be strengthened by moral recreation, quite as much as the body by physical recreation. The physician must always remember this—it is not always wise to tell a patient that his doom is sealed; neither is it wise to tell a nervous sufferer that he can be cured in a fortnight.

Persistence in Treatment.—This is of all things the most important in the treatment of nervous exhaustion. The neurasthenic must place himself in the hands of a skilled practitioner of medicine, and if he can find the physician who has suffered from nervous exhaustion himself, so much the better, for by reason of this fact his small ailments will receive attentive consideration and thoughtful and well-timed sympathy, rather than commonplace and summary jurisdiction. I repeat again what I have often said before—no man can possibly grasp the hidden subjective symptoms of the neurasthenic, unless he has himself experienced them. Neurasthenia is not like a fever which has its different stages, and at the end of a given time the patient dies or is cured. The cure of neurasthenia is dependent, amongst other things, upon the faith which the patient has in the skill, the judgment, and the honesty of his medical adviser. If the patient lacks confidence in the physician, he fails to carry out his instructions with that accuracy and exactness of detail which is at all times the secret of success. The physician, observing that the patient fails to obey him, loses his interest in the case, and unfortunately the patient is the sufferer under these circumstances. The man suffering from consumption knows his doom, and anticipates his death, generally without fear. The man suffering from nervous exhaustion has a morbid fear of death in every conceivable form and shape, yet he cannot be said to anticipate death. The mind and will in those nervously exhausted is essentially weak and vacillating; hence arises the necessity for the controlling influence and guiding efforts of a will superior to their own.

The neurasthenic may well exclaim, "Save me from my friends." I do not hesitate to say that many a man has suffered from nervous exhaustion for years (when he might have been cured), owing in great measure to the advice of his too-anxious friends to consult this man or that man, or to take this or that quack medicine, which cured Mrs. So-and-so when everybody had given her up. I need scarcely say that this is very unfortunate for the patient. If the patient feels that he has not confidence in the doctor he has consulted, the best thing for him to do is to seek the advice of a physician in whom he has confidence, and to follow out his treatment, for one, two, or three months if need be, until the desired result is obtained. Or again, on the other hand, if he feels that he is losing rather than gaining ground, he would be foolish to continue any mode of treatment which is delusive, useless, and unsatisfactory. Yet this much I would say to the neurasthenic : *Do not fail to adopt curative treatment early. Neurasthenia may be a mere question of life-long annoyance ; but it must not be forgotten that neurasthenia is not only the forerunner of every form of nervous disease, but it is also the precursor of many deadly ills and ailments, which are too often neglected, until all the remedies at our command are of little or no use whatever.*

INDEX.

A

Acetic acid, 125
 Advice to the neurasthenic, 132
 Ailments, 2, 28
 Alcohol, 82, 112
 Anxiety of neurasthenics, 26
 Apoplexy, 95
 Application, defective, 24
 Arsenic, 106
 Asthma, 63

B

Beard, Dr., views of, 3
 Biliousness, 72
 Bladder, irritability of, 73; a sign of
 commencing spinal disease, 75
 Blistering, 62, 124
 "Body, soul, and spirit," 98
 Brain, molecular derangement of cells,
 96, 97
 Breathing, nervous, 62
 Breeding in and in, 91
 Bromides, 107

C

Cancer, transmission of, 89
 Cannabis Indica, 107
 Carelessness, 28
 Case of despondency, 29, 36
 — melancholy with distaste for food,
 30, 31, 35
 — nervous dyspepsia, 69, 71
 Change of character in nervous disease,
 23

Charcot, 124
 Chloral, 108
 Civilization, 2
 Climate, 127
 Clothing, 126
 Coldness of extremities, 28, 49, 126;
 case of, 46
 Conducting power of the neurasthenic,
 127
 Constipation, 28, 56
 Craving, morbid, of neurasthenics, 26

D

Defective mental control, 23
 Degenerative changes, 81
 Delusions, 28
 Depression, 28
 Despair, 23
 Despondency, 28
 Diabetes, 75
 Diarrhoea from fear, 39
 Diet, 114; changes in, 119
 Digestion in nervous exhaustion, 118;
 variability of, 119
 Digitalis, 111
 Dipsomania, due to nervous exhaustion,
 26, 54; is a mania, 55
 Disordered sleep, 45
 Dosage in treatment, 103
 Dread of society, 28
 Drowsiness, 47
 Drugs, 106
 Dryness of mouth and throat, 25
 Dying, 19
 Dyspepsia, 28, 69

E

- Eating in nervous exhaustion, 69 ; case of, 69
 Electricity, application of, 121, 122
 Epilepsy, 25
 Exhaustion after going to stool, case of, 52
 Expression of the countenance in nervous disease, 23
 External treatment of neurasthenia, 119
 Eyes, feeling of burning, case of, 36

F

- Fashion concerning alcohol, 114
 Fat and blood, how to make them, 34
 Fear of attending church, 40
 — disease, 41
 — heights, 24
 — individuals, 24
 — lightning, 24, 39
 — places, 40
 — society, 24
 — travel, 38
 — woman, 24
 Flatulence and stomach pain not indigestion, 69
 Flatulent distension, due to nervous exhaustion, 68, 69 ; case of, 70-72
 Future of medicine, 2

G

- Gall bladder, paralysis of, due to exhaustion, 73
 — stones, 73
 Giddiness, 25
 Gladstone, 116
 Goltz's centre, 29
 Gout, transmission of, 89 ; due to nervous exhaustion, 125
 — latent, due to nervous exhaustion, 68

H

- Hammond, Dr., 42, 112 ; on sexual impotence, 56

- Hare, Dr., 104
 Hay fever, 63
 Headache, 24 ; treatment of, by electricity, 122 ; in connection with an irritable spine, 47 ; association of, with asthma, epilepsy, neuralgia, insanity, 48
 — bilious, 48
 — nervous, 49
 Heart, palpitation of, 65 ; sympathy of, with brain, 66, 67
 — exhaustion, 112
 — irritable, in nervous exhaustion, 66
 — the nervous, 65, 111 ; case of, 67
 Hereditary taint, 86
 Heredity of nervous constitutions, 79
 Health, 101
 Hopelessness, 23, 28
 Hydropathy, 125
 Hysteria as distinct from neurasthenia, 34

I

- Impotence, 55
 Impulse (fear and courage), 37
 Incipient signs of nervous exhaustion, 22
 — signs of grave disease not recognized, 22
 Incurable disease not recognized, 22
 Indigestion, nervous, 69
 Intolerance to near and dear friends, case of, 36
 Irritability, 23
 Iron, 106

J

- Jaundice due to shock, 70 ; due to nerve inhibition, 117
 Joints, swollen, due to nervous exhaustion, case of, 35
 Jones, Bennet, 19

K

- Kidney inadequacy, 117

L

- Laycock, Dr., on hereditary deficiency of the *vis nervosa*, 92
 Leucorrhœa, 49
 Link connecting material with the immaterial, 97
 Longevity, in India, 79 ; in Russia, 80

M

- Man, development of, 8
 Manner of the neurasthenic, 26
 Marriages, ill-assorted, 91 ; in the time of Socrates, 93
 Marshall Hall, 7
 Massage, the operation of, 120 ; harmful if not properly applied, 120 ; in pain, 120 ; with galvanism, 120
 Masseur, qualities of, 120
 Max Müller, 94
 McKendrick, observations of, 7
 Medical opinion of neurasthenics, 2
 Melancholy, 23, 28
 Memory, 24
 Menstrual discharge, 49, 58
 Mental and bodily action coexistent, 100
 — control, defective, 23
 — irritability, 23
 — perversion an incipient sign of nervous exhaustion, 37
 — recreation, 130
 Merciless position of the neurasthenic, 27
 Metalloscopy, 124
 Mimicry of disease, 58
 Morbid fears, 24, 28, 37, 40
 Murchison, 68

N

- Nature's processes, 105
 Nerve storm, 49, 50
 Nervous breathing, 62
 — diseases of women, 57
 — dyspepsia, 69
 — energy and exhaustion, 14, 15

- Nervous exhaustion, simulating organic brain disease, 21 ; case of, 35 ; and abnormal sensations, 60 ; treatment of, 101 ; the cause of gout, 125
 — force, 11
 — grey matter, 9
 — headache, 47 ; case of, 53 ; treatment of, 54
 — heart, due to sexual irritability, 68 ; treatment of, 68
 — pulse, 66
 — system, formation of, 8, 9 ; division of, 10
 — voice, 61
 — weakness, due to ill-assorted parentage, 91
 Neuralgia, 59
 Neurasthenia, study of, 4
 Neurasthenics, 2, 22, 27
 Noises in the ears, 25 ; case of, 36

O

- Opium, the value of, 110
 Origin of disease, 21
 — nerve exhaustion, 25
 Over-anxiety, cause of headache, 53
 Oversensitiveness in nervous exhaustion, 26

P

- Pain at back of head and spine, case of, 35, 46
 Painful joints in nerve exhaustion, case of, 35
 Paget, Sir J., 84 ; on transmission of cancer, 84, 90
 Palpitation of heart, 65
 Parkes on degeneration, 80
 Phosphorus, 108
 Physical development and neurasthenia, 61
 Physiology, 7
 Position of the neurasthenic in relation to his surroundings, 27
 Potass iodide, 108
 Power, defective, balance of, 38 ; for business purposes, 39

Profound exhaustion, 60
 Public opinion, 2
 Pulse, nervous, 66, 111
 Pure blood, 118

R

Railway travelling, fear of, 38, 76; injurious in nervous disease, 76
 Reflexes, 61
 Remedies out of fashion, 105
 Resisting power, 19
 Restlessness, case of, 35
 Rheumatic gout due to nervous exhaustion, 125

S

Schlegel, 79, 98
 Science in the treatment of disease, 4, 5
 — of neurasthenia, 3
 Sensations, stomach, 24, 44, 45
 Sensuality a cause of nervous exhaustion, 25
 Sexual impotence, 55
 Shock, 25
 Signs of nervous exhaustion, 23
 Skin, variation of colour, case of, 36
 Sleep, 25, 42, 43
 Sleeplessness, 42
 Smoking, 55
 Special forms of mental derangement, 28
 — senses, 24
 Spinal irritation, case of, 35
 Stomach, nervous exhaustion of, 117
 Strange sensations, 24; upon going to sleep, 45
 Strychnia, 109
 Subjective nature of neurasthenia, 2
 Sugar as an article of diet, 116
 Sulphur, 110
 Sweating from fear, 40
 — of hands and feet, 25, 49
 Swelling of hands and feet in nervous exhaustion, case of, 36

Sympathy between stomach and brain, 117
 — for the neurasthenic, 27
 Symptoms of nerve exhaustion, 21

T

Tea as an article of diet, 116
 Temperament and constitution, 99
 Temperature, reduction of, by cold water, 126
 Transmission of disease, 85
 Travel, 128
 Treatment, fashion in, 104; do nothing form of, 105; persistence in, 131
 — of nervous exhaustion, 101

U

Urine in nervous exhaustion, 49

V

Valerian, 112
 Vision, defective, 25
 Vitality, defective, 47
 Voice, nervous, 61

W

Wakefulness, 42
 Want of steadfastness of purpose in neurasthenia, 60
 Webb, Captain, 18
 Wind the cause of palpitation of the heart, 68
 Women, nervous diseases of, 57
 Worry, 3, 77
 "Worry, the hell hound," 77

Y

Yawning a sign of nervous exhaustion, 64

Z

Zinc, 106

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ALPHABETICAL INDEX OF AUTHORS.

	PAGE
ABERCROMBIE (J.) On Tetany in Young Children	15
ADAMS (W.) Deformities (in Gant's Surgery)	29
ANNANDALE (Thos.) Abstracts of Surgical Principles	30
ATKINSON (W. B.) Therapeutics of Gynæcology and Obstetrics	26
——— Hints in the Obstetrical PrecEDURE	26
BAKER (Benson) How to Feed an Infant	26
BARNES (Robt.) Diseases of Women (in Gant's Surgery)	29
BARRAUD (H. R.) Picture of the International Medical Congress	22
BEACOCK (J.) Prize Essay on Breeding Cattle, etc.	36
BELL (J.) Manual of Surgical Operations	30
BELLAMY (E.) Text-book of Anatomical Plates	9
BERMINGHAM (E. J.) A Plea for Cremation.....	16
BERNARD (Claude) and HUETTE'S Text-book of Operative Surgery	30
BIGELOW (H. R.) Hydrophobia. The Disease as it appears in Man.....	20
BLACK (C.) Atlas of the Organs of Generation (Male)	10
BLACKLEY (C. H.) Hay Fever, its Causes and Treatment	20
BLAKE (Carter) Translation of Fau's Anatomy for Artists	11
BODDY (E. M.) History of Salt.....	29
BRAMWELL (Byrom) Diseases of the Spinal Cord	29
BROCHARD (J.) Practical Guide for the Young Mother.. ..	26
BROWN (George) The Student's Case-book	14
——— Aids to Anatomy. Aids to Surgery	34
BROWNE (Balfour) Mental Responsibility and Disease	13
BROWNE (Lennox) The Throat and its Diseases	32
——— Forms for taking Throat and Aural Cases	14
——— Movable Atlas of the Throat and Tongue	10
BURNES (A. G.) The Specific Action of Drugs.....	36
BURNETT (S. M.) The Examination of the Eyes	19
CAMERON (Chas.) Microbes in Fermentation, Putrefaction, and Disease ...	24
CARTER (R. Brudenell) Training of the Mind.....	25
CANTLIE (Jas.) Atlas of the Hand	10
CASSELLS (J. Patterson) Translation of Politzer's Diseases of the Ear	18
——— Deaf-mutism and the Education of the Deaf mute	16
CHARCOT (J. M.) Bright's Disease of the Kidneys.....	22
CHAUVEAU-FLEMING. Comparative Anatomy of the Domestic Animals	36
CLARKE (E. H.) The Building of a Brain	13
COCKLE (John), Contributions to Cardiac Pathology	21
——— Insufficiency of the Aortic Valves.....	21
COHNHEIM (Prof.) On the Contagiousness of Consumption.....	16
COLE (A. C.) Studies in Microscopical Science	25
COLES (Oakley) The Dental Student's Note Book	30
CROOM (J. Halliday) Minor Gynæcological Operations	20
CULLIMORE (D. H.) Consumption as a Contagious Disease.....	16
CUNNINGHAM (D. J.) The Dissector's Guide	18

	PAGE
CUTTER (G. R.) German-English Medical Dictionary	17
DARLING (W.) Anatomography, or Graphic Anatomy	11
——— The Essentials of Anatomy	11
DAWSON (W. E.) Guide to the Examinations of the Apothecaries' Society	19
DENNIS (Hy. J.) Second-Grade Perspective Drawing.....	12
——— Third-Grade Perspective Drawing	12
DOLAN (T. M.) Whooping Cough, its Pathology and Treatment.....	33
DOWSE (T. Stretch) Ataxia	12
——— Apoplexy	11
——— Neuralgia; its Nature and Treatment ..	26
——— Syphilis of the Brain and Spinal Cord.....	13
——— Skin Diseases from Nervous Affections	29
DRAGENDORFF (Prof. G.) Plant Analysis	29
DRYSDALE (John) The Protoplasmic Theory of Life.....	31
——— Life and the Equivalence of Force	30
——— Germ Theories of Infectious Diseases	30
DUDGEON (R.E.) The Sphygmograph	29
DUFFEY (G. F.) Text-book of Materia Medica and Pharmacy.....	23
EGAN (and Maybury) Aids to the Classics.....	39
EVANS (C. W. De Lacy) Can We Prolong Life?	31
——— Consumption: its Causes, Treatment, etc.....	16
FAU (J.) Artistic Anatomy of the Human Body	11
——— Anatomy of the External forms of Man	11
FEARNLEY (W.) Text-book for the Examination of Horses.....	36
——— Simple Ailments of Horses. Their Nature and Treatment.....	36
——— Lessons in Horse Judging	36
FLAXMAN (J.) Elementary Anatomical Studies for Artists	11
FLEMING (G.) Text-book of Veterinary Obstetrics.....	37
——— Text-book of Veterinary Pathology	37
——— Text-book of Veterinary Surgery	37
——— Veterinary Sanitary Science and Police	37
——— Practical Horse-Shoeing	37
——— Animal Plagues, their History, Nature and Treatment	37
——— 2nd Series, 1800 to 1844	37
——— Contagious Diseases of Animals	37
——— Tuberculosis.....	16
——— Human and Animal Variolæ	37
——— Heredity and Contagion in the Propagation of Tuberculosis	37
FLINT (Austin) Essays on Conservative Medicine	24
FOTHERGILL (J. Milner) Chronic Bronchitis	14
——— Aids to Diagnosis (Semeiological)	34
——— Aids to Rational Therapeutics.....	35
——— The Physiological Factor in Diagnosis	17
——— The Physiologist in the Household	28
GANT (F. J.) Text-book of the Science and Practice of Surgery	29
——— Diseases of the Bladder, Prostate Gland, and Urethra	32
——— Guide to the Examinations at the College of Surgeons.....	19
GIRAUD-TEULON Anomalies of Vision.....	19
GLOVER (J. G.) Medical Reform	24
GOODELL (Wm.) Lessons in Gynæcology	20
GORDON (Chas. A.) Our Trip to Burmah	13
——— Life on the Gold Coast	9
——— Lessons in Military Hygiene and Surgery	21
——— Experiences of an Army Surgeon in India	22

	PAGE
GORDON (Chas. A.) A Manual of Sanitation	21
GORE (Albert A.) Our Services Under the Crown	24
——— Medical History of African Campaigns	9
GRAY The Pocket Gray, or Anatomist's Vade-Mecum	11
GREENWOOD (J.) Laws Affecting Medical Men	23
GREENWOOD (Major) Aids to Zoology	35
GREVILLE (H. L.) Chemistry	14
GRIFFITHS (W. H.) Text-book of Materia Medica and Pharmacy	23
——— Notes on the Pharmacopœial Preparations.....	27
——— Posological Tables	28
——— A System of Botanical Analysis	13
GUBLER (Professor) The Principles and Methods of Therapeutics	31
GUILLEMARD (F. H. H.) Endemic Hæmaturia	19
HALTON (R. J.) Short Lectures on Sanitary Subjects	21
HAMILTON (Frank H.) Fracture of the Patella.....	20
——— Health Aphorisms	21
HAMMOND (W. A.) On Sexual Impotence in the Male.....	21
HARRIS (Vincent) Manual for the Physiological Laboratory	28
HARTMANN (Prof.) On Deafmutism, Translation by Dr. Cassells	16
HAYNES (Stanley) Healthy Houses	21
HEMMING (W. D.) Aids to Examinations	34
——— Aids to Forensic Medicine	34
——— Otorrhœa	18
HENRY (Alex.) Posological and Therapeutic Tables	28
HILL (J. W.) Management and Diseases of the Dog	37
——— Principles and Practice of Bovine Medicine	37
HIME (T. W.) Cholera: How to prevent and Resist It.....	15
——— The Practical Guide to the Public Health Acts.....	28
HOGG (Jabez) The Cure of Cataract	19
——— The Impairment of Vision from Shock	19
——— Parasitic or Germ Theory of Disease	30
HOPGOOD (T. F.) Notes on Surgical Treatment	30
HOWAT (G. R.) How to Prevent and Treat Consumption	16
HOWE (J. W.) The Breath, and Diseases which give it a Fœtid Odour	13
HUSBAND (H. Aubrey) Handbook of Forensic Medicine	20
——— Handbook of the Practice of Medicine.....	24
——— Student's Pocket Prescriber	28
——— A Digest of the Sanitary Acts of England	29
HYSLOP (W.) Sermons for Hospitals, Gaols, Asylums, etc.	25
INCE (J.) Latin Grammar of Pharmacy	27
JACOB (A. H.) The General Medical Council	24
JAMES (Brindley) Replies to Questions in Therapeutics	35
JAMES (M. P.) Laryngoscopy and Rhinoscopy in Throat Diseases	32
JENNINGS (C. E.) On Transfusion of the Blood and Saline Fluids	32
JONES (H. Macnaughton) The Diseases of Women	20
JUKES-BROWNE (A. J.) Palæontology (in Penning's Field Geology)	20
KENNEDY (Hy.) An Essay on Fatty Heart.....	21
LAFFAN (T.) The Medical Profession of the United Kingdom (Second Carmichael Prize Essay) ..	23
LAMBERT (J.) The Germ Theory of Disease	37

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	PAGE
LANDOLT (Prof.) The Examination of the Eyes.....	19
LEONARD (H. C.) The Hair in Health and Disease	20
LE SUEUR (A.) Aids to Analytical Geometry... ..	39
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——— The Sewage Question.....	29
LEASK (J. G.) Questions at Medical Science Examinations	19
LITTLE (Jas.) Clinical Note-Book	14
LOWNE (B. T.) Aids to Physiology	35
LUNN (C.) The Philosophy of Voice	33
——— Artistic Voice in Speech and song	33
MACBRIDE (J. A.) Anatomical Outlines of the Horse	38
MACDONALD (Angus) Materia Medica and Therapeutics.....	23
MACKENZIE (M.) Diseases of the Throat (in Gant's Surgery)	31
McLACHLAN (John) Handbook of Surgical Anatomy	30
MAHOMED (F. A.) The Sphygmograph (in Gant's Surgery)	29
MAPOTHER (E. D.) A Manual of Physiology	27
MASSE (J. N.) Text-book of Anatomical Plates	9
MAYBURY (and Egan) Aids to the Classics	39
MAYER (T. W.) Anatomical Outlines of the Horse.....	38
MEARS (W. P.) Schematic Anatomy	11
MEYRICK (J. J.) Stable Management and the Prevention of Diseases among Horses in India	38
MILLARD (H. B.) Bright's Disease of the Kidneys.....	23
MILNE (Alex.) The Principles and Practice of Midwifery	25
MOORE (E. H.) Clinical Chart for Hospital and Private Practice.....	16
MORGAN (John) The Dangers of Chloroform and the Safety and Efficiency of Ether in Surgical Operations	9
MUCKLEY (W. J.) Student's Manual of Artistic Anatomy.....	12
——— A Handbook for Painters and Art Students on the Use of Colours	16
MUTER (J.) Key to Organic Materia Medica	23
——— Introduction to Analytical Chemistry	14
——— Introduction to Pharmaceutical Chemistry	15
MURRAY (R. Milne) Chemical Notes and Equations	15
NALL (S.) Aids to Obstetrics	35
NAPHEYS (G. H.) Modern Medical Therapeutics	31
——— Modern Surgical Therapeutics	31
——— Therapeutics of Gynæcology.....	31
——— Handbook of Popular Medicine	18
NORTON (A. T.) Text-book of Operative Surgery	30
——— Osteology for Students	27
——— Affections of the Throat and Larynx	32
ORMSBY (L. H.) Deformities of the Human Body	17
OTIS (F. S.) Genito-Urinary Diseases and Syphilis	32
OWEN (Lloyd) Translation of Giraud-Teulon's (Anomalies of Vision)	19
PALFREY (J.) Atlas of the Female Organs of Generation	10
PALMER (J. F.) How to Bring up Young Children by Hand	26
PALMER (B. W.) Favourite Prescriptions	28
PARRISH (Ed.) A Treatise on Pharmacy	27
PENNING (W. H.) Text-book of Field Geology	20
——— Engineering Geology	20
——— Notes on Nuisances, Drains, and Dwellings	21

	PAGE
PETTENKOFER (Von) Cholera : How to Prevent and Resist it.....	15
POLITZER (Prof.) The Ear and its Diseases	18
POMEROY (O. D.) On Diseases of the Ear	18
POWER (Hy.) Movable Atlas of the Eye, and the Mechanism of Vision	10
———— Diseases of the Eye (in Gant's Surgery)	29
POWER (D'Arcy) Handbook for the Physiological Laboratory	28
PRATT (W.) A Physician's Sermon to Young Men	25
PROCTOR (Richd.) The Stars and the Earth	12
PURVES (L.) Aural Diseases (in Gant's Surgery)	29
REMSSEN (Ira) Principles of Theoretical Chemistry	14
REYNOLDS (R. S.) The Breeding and Management of Draught Horses.....	38
REYNOLDS (J. Emerson) Lectures on Experimental Chemistry	14
RICHARDS (J. M.) A Chronology of Medicine	24
RICHARDSON (Thos.) Chemistry in its Application to the Arts and Manu- factures	15
RIVINGTON (W.) The Medical Profession (First Carmichael Prize Essay)...	23
———— Medical Education and Organization	23
ROBERTSON (William) A Handbook of the Practice of Equine Medicine...	38
ROTH (M.) Works on Deformities, Exercises, etc.	17
ROUTH (C. H. F.) Overwork and Premature Mental Decay	27
———— On Fibrous Tumours of the Womb	27
———— On Checks to Population	28
SCHELL (Hy. S.) Manual of Ophthalmic Practice.....	19
SCORESBY-JACKSON (R. E.) Note-Book of Materia Medica	23
SEILER (C.) A Compendium of Microscopical Technology.....	24
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———— Movable Atlas of the Human Body (Neck and Trunk)	10
SEMPLE (C. E. A.) Aids to Botany	34
———— Aids to Chemistry	34
———— Aids to Materia Medica	35
———— Aids to Medicine	35
———— Diseases of Children	15
———— Aids to Pharmacy	35
SEWILL (Hy.) Movable Atlas of the Teeth	10
SMITH (C.) Mental Capacity in Relation to Insanity, Crime, etc.....	13
SPITZKA (E. C.) The Diagnosis and Treatment of Insanity	22
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STRANGEWAYS (Thos.) Text Book of Veterinary Anatomy	38
STUDENTS' AIDS SERIES	34
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THIN (George) Introduction to Practical Histology	21
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TICHBORNE (Professor) The Mineral Waters of Europe	25
THOROWGOOD (J. C.) Consumption ; its Treatment by the Hypophosphites	16
———— Aids to Physical Diagnosis.....	17
THUDICHUM (A. L.) Aids to Physiological Chemistry.....	35
———— Aids to Public Health.....	35
TIMMS (G.) Consumption ; its Nature and Treatment	16
———— Alcohol in some Clinical Aspects, a Remedy, a Poison	9
TOMES (C. S.) Dental Surgery (in Gant's Surgery)	29
TYSON (J.) The Urine, a Guide to its Practical Examination	32

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	PAGE
VAUGHAN (J.) Strangeways' Veterinary Anatomy	38
WALLER (B. R.) Interstitial Nephritis	26
WALLEY (Thos.) The Four Bovine Scourges	38
WEST (J. E.) Syllabus of Vertebrate Morphology	33
WIGHT (J. S.) The Principles of Myodynamics	26
WILLIAMS (R.) Hints for Hospital Nurses	26
WILLSON (A. Rivers) Chemical Notes for Pharmaceutical Students	14
WILSON (Sir Erasmus) Diseases of the Skin (in Gant's Surgery).....	29
WILSON (J.) A Manual of Naval Hygiene	21
WINSLOW (L. S. Forbes) Manual of Lunacy	22
——— Chart of the Lunacy Acts	22
——— Handbook for Attendants on the Insane	22
——— Fasting and Feeding	19
——— Spiritualistic Madness.....	22
——— Aids to Psychological Medicine	35
WISE (A. T. Tucker) Weisen. As a Winter Health Resort in early Phthisis	33
WITKOWSKI (G. J.) Movable Atlases of the Human Body	12

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